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ART. I. *An Essay on Syphilis.* By DR. S. A. CARTWRIGHT, Natchez, Mississippi.

IN the autumn of 1822, Mr. L. D. of Monroe, (Mississippi,) applied to me to cure him of Syphilis. He had chancres and buboes; the former had appeared about a month, the latter, about a week previous to his application.—Two days afterwards, when I visited him, in order to put him on a mercurial course, consisting of 2 grs. of calomel per day, with opium and some diaphoretic, I found that he had been attacked, since I last saw him, with the bilious fever, which was at that time epidemic in his neighborhood. I was not at a loss what to do, having seen too much of bilious fever to think of trusting it, in its first stages, to any remedies, not calculated to evacuate the alimentary canal. Bilious fever, I knew, might prove fatal in a week or nine days, but syphilis, not in as many months. I concluded, therefore, to cure the patient first of his fever, without regard to the venereal complaint; intending, when he was free from the danger of the former, to commence the treatment for the latter. As his stomach was very irritable, it would retain no medicine but calomel. Of this he took two doses, each 20 grs. daily, with injections to make it operate. He was also bled twice during his fever. This course was pursued for a week, at the end of which time it was suspended, as he began to complain of his gums being tender, and his teeth sore, when squeezed together. His fever now subsided. He had

been so dangerously ill that we both had forgotten the venereal affection; and it was not until two or three days after he had begun to recover, that an examination was made. I then looked for his chancre; but saw only the cicatrix—I felt for his buboes;—but found none. I left with him a box of mercurial pills, and some of the Ung. Hyd. with directions how to proceed, in the event of the syphilis reappearing. Twelve months afterwards I saw him, and he informed me that he had never made use of the medicine I left him, as not the least symptom of the venereal had ever appeared; but on the contrary his health was better, than it had ever been, since his recovery from the bilious fever.

Shortly after having cured the above patient, I was called to see a Mr. G——, with syphilis. As he was "an old soldier in the wars of Venus," he had salivated himself by the blue pill and mercurial ointment, very soon after the venereal symptoms had made their appearance. I found him with a very hot skin and quick pulse, torpid bowels, and a dyspeptic state of the stomach; his gums and parotid glands, very much swollen, and his tongue lined with a thick yellow coat of fur. He informed me that he had been in this situation for more than three weeks. He also stated, that when his fever ran high, his spitting stopped, but returned when the fever remitted. But what most alarmed him was, that since the salivation had commenced the venereal affection had become much worse, his throat having been affected, his buboes having suppurated, and his chancres having become much enlarged. He further observed that he had laid aside the use of mercury, and had been taking a decoction of guaiacum and sarsaparilla, but had experienced no benefit from it. I recollected of having seen a patient precisely in the same situation from mercury, (only the salivation had not been on him so long, nor had he the venereal disease, but bilious fever,) cured by an empiric, by large doses of calomel, which brought away much bilious matter, the skin becoming moist, the urine copious, and the ptyalism itself less profuse. I also recollected of having seen another patient, who had become badly salivated, in the progress of bilious fever, by small doses of calomel and opium, the fever not yielding, but growing worse, sink, while taking large doses of the remedy, from the same daring hand. But in the latter case, the bowels were not moved, nor did the skin become moist, nor the kidnies secrete urine; but the gums turned black, the saliva ceased entirely to flow; nervous tremours and great prostration, denoted the approach of death. Not deterred by the

recollection of the latter case, I ordered my venereal patient, 20 grs. of calomel; also an enema, if the calomel did not operate in four or five hours. The remedy brought away two or three copious stools, of a black colour. The skin, after these evacuations, became moist, and continued so, nearly all the following day; and the saliva continued to flow from the mouth, the swelling of which, the next day, had much subsided. The patient was ordered to keep his bowels open, and drink freely of *ptisans*. The disease began to yield at once; and on the fifth day from his having taken the calomel, the ptyalism entirely ceased. I now repeated it with the same precautions as before. It moved the bowels three times; the spitting slightly returned; but the mouth did not swell. He took three more doses, five days between each: at the end of which time, not a vestige of the venereal remained, excepting the ulcers of the buboes, which soon healed, without the use of any more mercury. The complaint never returned afterwards. Shortly after this, I heard professor Dudley relate a case of a venereal patient, whom neither the blue pill, small doses of calomel and opium, inunction with mercurial ointment, the oxymuriate of mercury, in all its forms of pills and solution, nor mercurial fumigations, would salivate. The reason why they would not salivate, he said, was owing to all these remedies producing *diabetes*, and thereby running off by the kidnies. In the mean time the venereal affection had progressed rapidly, defying mercury in all its forms, and threatening the patient with death. The professor stated, that he gave him one or more *large doses* of calomel and jalap, which, he supposed, removed the irritation from the kidnies to the bowels;—after which, the patient readily became salivated, and the disease yielded. Not being altogether satisfied with the professor's explanation, when I returned home, I noted down the case in a manuscript book, from which I shall transcribe much of this essay, entitled "Inexplicable Facts." Not long after this, an athletic man, of rigid fibre and bilious temperament, applied to me to cure him of lues venerea. The blue pill and inunction with mercurial ointment, were prescribed, which he took during several days, without effect: the disease in the mean time was progressing rapidly. I bled him freely and recommended him to persevere in the mercurial course a few days longer; which was done without effect. He now became very uneasy about his situation. Such was the native vigour of his constitution, that neither the bleeding nor the mercury appeared to have much control over it. The

pills and ointment were discontinued, and dr. ss. calomel given at night, on going to bed. It operated twice by the next night, stools dark, when it was repeated. The day after the second dose, he felt a slight soreness in his gums and teeth, while eating his supper. This slight soreness continued three days, in which time, the venereal symptoms had begun to subside. He now took a third dose, which operated, like the others, two or three times, and produced a tenderness in the gums, which continued for more than a week, in which time, the disease entirely disappeared, and returned no more.

In 1823, a female applied to me who had had the lues venerea for upwards of two years, and had been several times salivated without having been effectually cured. The per-chloride or oxymuriate of mercury, the blue pill and ointment, were the preparations of mercury which had been used. She had two cutaneous ulcers, several bones of the nose had exfoliated, and a ragged ulcer occupied a considerable portion of the soft palate. I gave her a box of pills, each of which contained scr. ss. of calomel and 2 grs. of rhubarb, with directions to take two of the pills every third or fourth night at bed time—if they operated more than twice, and the stools were not green or black, to take a little laudanum or paregoric —if green or dark, to let the evacuations continue until their appearance became changed. If the pills did not operate in 12 or 16 hours, to assist them by a tea spoonful or two of Epsom salts, or some mild purgative. So soon as the least soreness in the gums or teeth was felt, to quit taking them, until it had entirely ceased; after which, cautiously to begin again—in the mean time, to drink plentifully of sassafras tea. The patient pursued the above directions for six or eight weeks, at the end of which time, the ulcers had entirely healed, and the disease had disappeared. Her catamenia, before interrupted, were re-established—her sallow complexion became ruddy, and her general health good. The success which had attended the above plan of treatment, induced me to try it in the case of Miss K. I. who was brought into Natchez Hospital, (to which I was the attending physician) in a most loathsome condition from syphilis. She had dreadful ulcers on the labia pudendi, the nymphæ were much inflamed from the ichorous discharge, and extended a hand's breadth without the labia. She had been taking, without effect, for more than a month, the oxymuriate of mercury. I gave her large doses of calomel, as in the preceding case. In three weeks she left the hospital, being nearly well, and in a few more, returned to her old trade.

Did I deem it necessary, I could relate numerous other cases of the worst kind, wherein there were buboes, ulcers in the throat, caries of the bones and nodes, which have yielded nearly as soon to the above plan, as a recent infection would have done to the common mode of treatment. As it respects recent cases, they have been found by an experience of more than two years practice in syphilis, to yield almost as soon to twenty or thirty grains of calomel, given every or every other day, as a common cold in good constitutions yields to the native powers of the system. I never prescribe the calomel with a view to produce ptyalism; to guard against such an event, I always direct an injection to be given, or some mild purgative taken, in twelve or sixteen hours after the calomel, if it does not operate. And in the event of its operating too much, I direct a little laudanum, so as to limit its action on the bowels to two or three evacuations, unless they be of a deep green or black colour. As soon as a copperish taste is perceived in the mouth, or the least tenderness of the gums, or soreness of the teeth, I order its immediate suspension, until these symptoms have disappeared; when it should be resumed with caution. The preparation I generally use is 20 grs. of calomel and 4 of rhubarb, given at bed time. Generally, by the time three or four doses have been taken, the breath will begin to have a mercurial odour, a copperish taste will be perceived in the mouth, or the gums will feel tender. About this time, or even before it, the venereal symptoms begin to disappear, and in a few days more, the chancres entirely heal. I generally recommend, after the healing of the chancres, a dose or two more, to ensure the complete elimination of the disease. I have rarely found more than twelve or sixteen pills, each 10 grs. calomel and 2 rhei, necessary for the cure of a recent infection. On asking an intelligent physician of this place, (Dr. Chew,) if he did not often find great difficulty in bringing the system of a robust venereal patient under the specific influence of mercury by the use of corrosive sublimate, the blue pill, small doses of calomel, or frictions with mercurial ointment, he informed me, that he had so often seen *no* effect at all from these remedies, or such *bad* effects, that he had made it a rule of practice to prepare the system for a mercurial course, by a large dose or two of calomel. My plan differs from his in this—that after having wrought *a change* by efficient doses of calomel, instead of putting the patient on the old plan of treatment, I keep up *this change of state in the system* by an occasional dose of calomel, which soon cures the patient.

He is generally able to attend to his common employment, to eat at the same table, to sleep in the same bed with his acquaintances, without its being discovered that he is taking any medicine at all, and, if the physician chooses, without the patient himself knowing that he is taking mercury. The only local application I use, is a soft rag spread with simple ointment or ol. oliv. to be retained over the diseased parts, to prevent them from becoming irritated. Should they be much inflamed, soft poultices of slippery elm bark, until the inflammation is removed. The patient should be temperate in his diet, and should drink, if convenient, of a tea made of the wood of the root of the laurus sassafras. The physiological changes which I have observed to take place, in the systems of those whom I have so often put under the above plan of treatment, are 1st. an extraordinary excitement of the hepatic secretories, which is proven by two, three, or more copious, dark or green bilious evacuations; 2d. an extraordinary excitement of the exhalents of the skin, which is proven by the strong smell of the patient's linen, and the rapidity with which it becomes soiled; 3d. an increased excitement of the renal secretories, as manifested by an increased secretion of urine; 4th. the absorbent system receives new vigour, as is proven by the rapid resolution of buboes and other swellings. The patients, under the above course, are generally able to attend to their ordinary employments. When they are not, the fault will be found to be in the system, not in the remedy. I have at this time with lues venera, a patient to whom I gave a scruple of calomel—it made him very sick, too much so to labour at the blacksmith business. The day after taking the remedy, erysipelas made its appearance on his skin. I bled him freely, gave him an antimonial emetic, followed up by neutral salts. After which, I put him on the former course of scruple doses of calomel, which he takes without inconvenience. He at least continues to labour all day at the anvil, and his disease is leaving him. Should the calomel be found to disagree with the patient, his skin will be found to be hot, his tongue furred, his bowels torpid or irritable, or his system plethoric, &c. Hence not only this remedy, but every other remedy or combination of remedies, in order to be prescribed with uniform success, should be prescribed by a physician, as he is the best judge of the state of the system, and best knows how to obviate those circumstances which might oppose the sanative effects of the remedy. It has been well observed by Dr. Thomas Brown,* that "The operations of na-

* Lecture 94. Vol. 3.

ture are not arbitrary, so as to vary with the particular circumstances of the individual and of the moment," and I would add, that so little *arbitrary* are the laws of nature, that if a remedy has ever cured one disease, it will under like circumstances always cure it. How important, then, is it to examine the circumstances under which a cure has been effected; not only by outward appearances, but, as far as practicable, the physiological aberrations of the various organs when a remedy is given; the alterations which succeed the administration of the remedy, and the effect of these alterations on the disease. "On observation all science is founded," and in no science is observation of more service than in that of Medicine. Without observing the existing morbid state of the system, which may co-exist with the morbid state which constitutes a specific disease, to prescribe a remedy for such disease, would be to prescribe a remedy useful in one case, and pernicious or useless in another, only because it was used in the one in different pathological conditions of the system, to its use in the other. It is a remedy calculated to remove the peculiar pathological condition of the system which constitutes the lues venerea, which I am holding up to view—not a *nostrum*, intended to remove the specific disease in *every* pathological condition of the system. It should therefore be prescribed by a physician, with due reference to the state of the system, to be uniformly successful.

But what is the modus operandi of large doses of calomel? I answer, that when given in a proper state of the system, they become the *antecedent* of certain phenomena before enumerated, as increased secretory action of the kidnies, liver, skin, &c. permanently sustained as their invariable *consequent;* and that these phenomena are the *antecedent* to another consequent—the removal of that pathological condition of the system, which constituted syphilis.

Those who have not used calomel extensively, would be apt to suppose *a priori*, that large doses would produce hyper-catharsis, and debilitate the patient. But experience can best refute such suppositions, for it shows us that large doses of calomel operate much more mildly than smaller ones. So far back as my memory can extend, I recollect of having heard and experienced this truth. When a child, I had a dysentery—my father gave me a small dose of calomel. It operated severely, and was attended with great tormina. The next day Dr. Wilson, of Leesburgh, was sent for, then living in Fairfax Co. Virginia, a gentleman whose knowledge is only equalled by his benevolence. So soon as he arrived, he

recommended a much larger dose to be immediately taken. I shuddered at the prescription, well knowing the anguish and debility produced by the smaller dose. My father also expressed doubts of the propriety of the prescription. But the Doctor, with his usual good humour and suavity of manner, assured us, that calomel in large doses, operated much more mildly than in smaller ones. He stated that these peculiar effects of calomel he had learned from his preceptor, Dr. Dick, of Alexandria, and saw it daily verified in his practice. I took the large dose as prescribed. It had a happy effect in allaying my tenesmus—it operated but twice, and that without pain. I immediately began to recover. I have since read, and have forgotten the theories and speculations of many great names, but have not forgotten the above simple fact, which has been of more real utility to me, when after years called me to the bed side of the sick, than any hypothesis I ever met with in the libraries of the schools, or heard advanced by the schoolmen themselves.

That large doses of calomel purge *less* than smaller doses of that medicine, although well known to the experienced practitioner, appears yet to be viewed as an insulated fact, not well understood. Nothing, however, will be more plain, if the phenomena the system presents, under the influence of large doses of calomel, be observed. These phenomena are an increased secretory action, not in one organ alone, but in all (or at least many) secretory organs of the system. Hence the secretions *of no one particular organ can be very profuse*, when *all* the organs are preternaturally excited. Smaller doses act more directly on one secretory organ—that organ is the *liver*. And hence the secretion of bile is very profuse, because no organ but the liver is preternaturally excited. The truth of this fact, the experience of every practitioner, who has used calomel in doses of from five to fifteen grs. will establish. Still smaller doses, if not sufficient to produce secretion, act on the system as a morbid irritant, and occasion mercurial fever, which nature removes by an increased secretion of the salivary glands. This I expect afterwards to prove.

The reason why calomel produces these different effects, in different doses, I do not know. The fact that it does produce these different effects, is all to which I wish to direct the attention of physicians. In proof that large doses of calomel not only cure syphilis by producing an increased secretory action of many organs, but bilious fever, dysentery, &c. and that this general secretory action is incompatible with an

immoderate secretion from any one organ, as the liver or salivary glands, in addition to the proofs already adduced, in which salivation, or an immoderate secretion of the salivary glands became diminished, when large doses of calomel had produced a secretory action in other organs, I beg leave to bring forward the case of Dr. Johnson, as related by himself, in his Tropical Climates, under the head of Dysentery. "At 4 o'clock in the morning," says the Doctor, "I repeated the dose of calomel, [20 grs.] and at 8 o'clock I fell, for the first time, into a profound and refreshing sleep, which lasted until near midnight, when I awoke." A profound and refreshing sleep, it is well known, can only take place when the various secretory organs of the system perform their office. He continues, "My skin was covered with a *warm moisture*, and I lay for some time without moving a voluntary muscle, doubtful whether my feeling and senses did not deceive me. I now felt an uneasiness in my bowels, and a call to stool. Alas, thought I, my miseries are not yet over! I wrapped myself up to prevent a chill, and was most agreeably surprised to find, that with little or no griping, I passed a copious, feculent, bilious stool." "On getting into bed, I perceived my gums were much swollen, and that the saliva was flowing from my mouth." The above case plainly shows that the organs of secretion throughout the system were excited into increased action, and that on this phenomenon the curative powers of the remedy depended. In travelling through the Chactaw nation of Indians, I was taken, after having encamped on the ground three successive nights, and having swum my horse over several water courses, in raw, rainy weather, with a violent pain in my stomach, with constant vomiting, attended with a constipated state of the bowels, a cold skin, and small pulse. A similar disease I had several times been attacked with in a civilized country, and in every instance had to take the warm bath, mercurial and other cathartics, and frequent injections, before I recovered; and these remedies had to be assisted by blood-letting, together with a large blistering plaster applied to the abdomen. I then recovered not until this course of treatment had been diligently pursued for upwards of a week. But I now found myself with a more violent attack, than I had ever before experienced. I reached an Indian *Wigwam*, and flung myself down on a bear-skin, before a small fire, in a little hut, with mud walls, covered with bark, without a chimney, and saw only around me the faces of savages. I was destitute of medicine to combat the disease with, and of pen, ink, or paper, to

leave an account of my untimely fate. After tossing from side to side, in the greatest anguish, from pain and a pertinacious vomiting, without being able to throw up any thing from my stomach; I recollected of having put up an oz. ss. of calomel, before I left home, at the request of a gentleman; but I was now at a loss to know, whether I had given it to him, or whether it might not yet be in some one of the pockets of the clothes then with me. I took my clothes out of my saddle bags, and searched them diligently. I at length found, what gold could not have purchased;—it was a half ounce of calomel. In it consisted my only hope, though a faint hope, of being relieved from the anguish of a painful disease, and of once more revisiting a civilized land. I poured a drachm of the calomel in my hand and ate it; for these savages had neither cups nor spoons. As my pain still continued, in two hours I repeated a similar dose. I at length fell asleep. Next morning when I awoke, the sun was shining. I was free from pain. The scenes of the past night seemed, for a moment, to have been only a frightful dream. But the two drachms of calomel, which remained of the oz. ss., were first to suggest the *reality* of the past. I was fearful of moving, as I thought that my absence from pain might be owing to the disease having terminated in *gangrene*, which might have been accelerated by the 120 grains of calomel which I had taken. What added to my fears was, that it had not, as yet, operated a single time, nor did I feel the least inclination to stool. I felt my pulse, which somewhat removed my fears, for it was full and soft; my skin was warm, yet inclined to be moist. I at length rose up cautiously, and walked out of the *wigwam*; finding I experienced no inconvenience from motion, I caught my horse, put on my baggage, and rode off; still, however, fearing that my situation was a dangerous one, in consequence of the medicine not having operated. I rode slowly on for ten miles, when I felt an inclination to stool. I dismounted, and had a copious, black, bilious evacuation. I then mounted my horse and trotted off, in the finest humour, being not till now convinced, that all danger was over. I continued to travel at the rate of thirty and forty miles a day, until I had finished a long journey.

Both the case of Dr. Johnson and myself, and innumerable others which might be adduced, plainly show, that, in whatever way large doses of calomel cure disease, it is not by producing mercurial fever; but, on the contrary, clinical observations prove, that the phenomena the system pre-

sents at the time of the favourable crisis, are the opposite of those denominated *fever*. Dr. Johnson awoke from a refreshing sleep, and found his "skin covered with a warm moisture;" he then had a copious evacuation from his bowels, of bilious matter. Certainly, there was here, every indication of the *absence*, and nothing of the *presence* of *fever*. If I had been cured by a mercurial fever, it is certain, that I should not have been able to have prosecuted a journey, on horseback, through a dreary wilderness, with such a fever on me. The hypothesis of the celebrated Hunter, that mercury, by producing fever, cures disease, in consequence of two actions not being able to exist in the same part, the one being incompatible to the other; and that of our illustrious Rush, that the fever of mercury is *centrifugal*; but of disease *centripetal;* the stronger, therefore, conquering the weaker, are sufficiently proven, by the above facts, to be *nothing but hypotheses*. It was no doubt owing to the hypothesis, that mercurial fever was an antidote to the venereal virus, that patients have been doomed to undergo a long and dangerous course of that fever, in order to be cured of the venereal disease. The errors of this practice have long been seen, because the venereal disease has been often found to become aggravated under it, notwithstanding the mercurial fever; and because the one or other, or both united, have been known to hurry the patient to an untimely grave. Contrary to the hypothesis of the anti-syphilitic virtue of mercurial fever, physicians have almost unanimously agreed to remove the fever, which the hypothesis holds out as being so salutary, by producing secretion with the sarsaparilla, Lisbon diet drink, &c. &c., which experience has proven, has a happier effect in mitigating the violence of the venereal disease, than the fever had. Blinded by an hypothesis, the mercury has been, in many cases, resumed, only to be pushed to the extent of producing fever; and under this practice, have many victims fallen, not so much to the venereal, as to the mercurial disease, with ulcers in their throats, and caries and exfoliations of the bones; which latter affections may be produced by the venenereal, but which I am much disposed to question, as I once saw them in a Mr. Walker of this place, who had never had the venereal disease in his life, produced by a long continued *mercurial fever*. To prevent the accession of this mercurial fever, a fever, on which, experience proves, all the evil effects of a mercurial course depend; and, at the same time, to obtain all the curative powers of mercury, is the grand excel-

lence of the plan of treating the venereal disease, which I have recommended. The plan generally pursued of giving small doses of calomel, of using the blue pill, or the oxymuriate of mercury, or of inunction with mercurial ointment, is each attended with a great disadvantage, hitherto overlooked. It is the tendency which these forms of mercury have, of producing mercurial fever, and not a general secretory action permanently sustained. But the plan I recommend, produces secretion, not remotely, but almost immediately, and at once disarms syphilis of all its terrors, without subjecting the patient to the evil consequences of a mercurial disease, among which, besides those already enumerated, is a liability *to take cold;* but under the proper administration of mercury, the permanent, gentle, and general increased secretory action thereby produced, like the permanent, gentle, and general increased secretory action of exercise, renders the system impregnable to causes of disease, which in a broken balance of excitement, whether produced by mercury or indolence, would have been formidable assailants. It is well known that in various parts of the United States, some few years since, the practice of giving mercury in fevers, with a view to its specific effects, became very prevalent. All the forms of mercury were tried, which had been used in syphilis, yet they failed so often, that they have been, as if by general consent, abandoned. Calomel in effectual doses, has maintained its character among many, who have lost their confidence in small or ineffecient doses of it. Armstrong and Johnson recommend it in effectual doses in the treatment of acute diseases, and experience proves, that such doses are less often attended with bad effects, than smaller ones.

The cases which I have mentioned, wherein a salivation was relieved, or cured by large doses of calomel, prove the superiority of such doses, in producing general secretion, over every other form of administering that mineral. In those cases, the other forms of mercury had produced a general irritation of the system, as characterized by hot skin, quick pulse, &c., which irritation was readily removed, as soon as the secretory office of the various organs had been restored by large doses. It seems to be not unlikely, that the excessive flow of saliva, which takes place in those to whom mercury has been improperly administered, is the method nature adopts, to free the system from the morbid irritation, which had been produced by the abuse of the mineral. If other morbid irritations be removed, by an increased renal, hepatic, or cutaneous discharge, why

should not an increased salivary discharge be the medium, by which nature removes a mercurial irritation? That this is the case, I infer from the increased violence of the mercurial fever, when the salivary discharge becomes diminished, or suspended, unless other organs have their secretory office restored or increased. In the case related by professor Dudley, the kidnies, instead of the salivary glands, appeared to have assumed the office of freeing the system from a remedy, whose improper use had caused it to become a morbid irritant, not a curative agent. So far, then, from a greatly increased salivary discharge being the sign that mercury has taken a proper effect, it would be the sign of its having produced an improper effect, as it shows that mercury, instead of having produced general secretion, had produced general irritation or fever, which nature, most commonly, removes by a greatly increased salivary discharge; but which she may remove by an increased urinary discharge, as in the case of Professor Dudley's patient.

The case related, wherein the patient fell a victim to large doses of calomel, proves clearly, that there are conditions of the system, in which mercury, in no form, will produce secretion, and that in these conditions of the system, of all others, mercury is most deleterious. When it produces secretion in one organ, as the salivary glands, its deleterious effects are diminished, in proportion as this local secretion removes the general irritation. But when it produces a general increased secretory action, throughout the system, the general irritation is prevented, as well as the profuse local secretion, and, at the same time, its curative powers are attained, without involving its deleterious consequences. I have said, that sometimes mercury in no form will produce secretion. It would be the extreme of folly to think of curing a violent inflammatory disease by any preperation of mercury, to the neglect of of the lancet, tartar emetic, and various other remedies, which have a greater control over high grades of action, than mercury in any form.

I have no doubt, but that the black sloughing gums, swollen tongue, hot skin, quick pulse, and extreme debility, which sometimes follow the use of mercury, are produced by one of two causes; either the remedy has not been given in sufficient doses to produce secretion; or in a state of the system, which is incompatible with the action of mercury, whether in large or small doses; and which, so far from requiring mercury, required other remedies.

I once knew two physicians, who had been trying to salivate a lady for bilious fever, by small doses of calomel and opium. The disease, on the appearance of ptyalism, so far from yielding, became aggravated, and great debility, which is a constant attendant of a broken balance, or a great diminution of the secretory action of the vital organs, was also present. Bark and wine were resorted to, in order to raise the system up to the salivating point, as the ptyalism was viewed as a *local*, not a *general* effect of mercury. The patient became much worse, and sent for Dr. Isaac Butler, of Florence, Alabama, who corded up her arm, and bled her, and then gave an antimonial emetic, followed up by calomel, not in grain, but in scruple doses, which produced secretion in the kidnies, liver, and skin. Her sore mouth got much better, the fever abated; and in a few days, she was walking about. Had Dr. Butler omitted the bloodletting and the emetic, and used only the calomel, this might have happened to have been one of those cases, which defies mercury, whether in large or small doses; and it thus might have tended to bring into disrepute one of our most valuable remedies. I am no advocate for the indiscriminate use of calomel in any form, as the states of the system which indicate it, I believe, to be few in comparison to those which contra-indicate it; yet when its use is indicated, it should be used in efficient doses, so should tartar emetic, so should opium, so should all remedies. Dr. Armstrong has observed, that mercury less often does harm in acute, than in chronic diseases. For the plain reason, I conceive, that he uses, as his works will show, efficient doses in the former, and small or inefficient doses in the latter. As to myself, I have, in my practice, seen worse effects from twenty grs. of calomel, divided into twenty parts, than I ever did, from twenty doses, each twenty grs. I could bring forward numberless facts, to prove the superiority of larger, over smaller doses, wherein, what is commonly called the specific effects of mercury were indicated, but I deem the following sufficient. I had a case of hydrothorax, which, I believed would end fatally. I called on my friend, (Dr. Isaac Butler, of Florence, Alabama,) to consult with me on the course which should be pursued. I told him, that I had been giving, without effect, calomel in small doses, combined with squills. He recommended scruple doses. On my expressing fears of bad effects from such doses, he asked me, if I would fear their effects if the case were bilious fever or dysentery? I hesitated no longer, but gave scruple doses repeated-

ly. The dormant secretory organs were aroused throughout the system. The kidnies, liver, and skin poured forth their specific fluids. The serous membrane of the thorax no longer bore the burden of maintaining the principal secretory action of the system, as it must have done, when the above important organs of secretion lay powerless. The loss of balance in the secretory action of the various organs, which constitutes the essence of dropsy, was restored, and health returned. The following case, besides shewing the efficacy of large doses of calomel in producing secretion, will also show the indispensable necessity of sometimes acting on other secretory organs, besides that of the liver, in order to cure disease. Mr. Henry Levert, of Russel's Valley, Alabama, had taken purging doses of calomel in bilious fever, for thirty days. His system had become so accustomed to a diurnal drain from the liver, that its functions could not, it would seem, be performed without it. This was proven by his becoming much worse daily, until he had had six or eight bilious dejections, after which he would get better. Although the liver would yield its secretions to calomel, it would not to any other purgative. Notwithstanding the diurnal drain from the liver, the skin continued dry, the urine scanty, the pulse quick, the tongue covered over with a thick, green fur, the mouth and fauces dry and parched. At the end of thirty days, four physicians were called to see him, two of whom gave it as their decided opinion, that I had given him too much calomel, and that his disease was entirely mercurial. It was agreed to trust the case to tonics, mild enemata, &c. I requested the gentlemen to wait a few hours, and see the effects of their tonic plan. The time soon came when his system began to demand bilious evacuations—he now grew worse—in two hours more, such difficulty of breathing, and heaviness at the stomach came on, that an alarming syncope took place, from which the patient was aroused by volatiles and stimulants, only to pant a few minutes and to faint away again. One of the physicians, a late graduate of the Edinburgh school, shuddered when I strenuously urged the propriety of giving immediately 15 or 20 grs. of calomel with jalap, and injections to make it operate, to a patient whom he and his colleague supposed to be now dying with the *mercurial erethismus*, described by Pearson, of Lock Hospital. I took the responsibility on myself alone, and gave the calomel and the jalap, and assisted it by injections. The medicine operated freely and powerfully, and, as it operated, the pressure about the præcordia became more and more relieved, and the fainting fits subsided,

at length, entirely. So soon as I had given the patient the forbidden dose of calomel, I sent 25 miles for Dr. Butler. When he came, I told him of my intention of giving the patient 20, 30, or 40 grs. of calomel, and to repeat it frequently. He approved of the practice. In a very few days, the patient took four hundred grains of calomel, besides being rubbed with mercurial ointment. *Six* or *eight* bilious evacuations had been daily produced by the *ordinary* doses, but *one* or *two* only, by the *extraordinary* doses. Under this practice, the mucous membrane of the mouth and fauces became moist, the skin became covered with a warm and gentle perspiration, the kidnies secreted urine freely, and the patient recovered in a short time, without having a sore mouth, or the least increased salivary discharge. My limits will permit me to bring forward but one more case to establish the superior efficacy of large doses of calomel over smaller doses, in producing secretion. In the following case, it will be recollected that the state of the system was such, that nothing but an *extraordinary* dose would produce an *ordinary* effect, and should be no more imitated in a different state of the system, than we should imitate, in administering laudanum to a delicate female in ordinary circumstances, the dose which we may have seen given with advantage to a female nearly ready to expire under uterine hemorrhage. In 1824, a child, Charles Evans, about four years old, grandson of the editor of the Mississippi State Gazette, was attacked with cynanche trachealis. Every thing had been tried in vain—it had been puked until it could puke no longer—its lungs were so full of a viscid phlegm, which still continued to collect, that it could scarcely breathe. It was my opinion, as well as that of an old experienced physician who also saw it, that it could live but a few hours longer. While walking from the child, having now despaired of its life, it occurred to me, that in consequence of a suspension of the secretory process of the skin, as indicated by its dryness and insensibility; in the kidnies, by the paucity of urine; in the liver, by the difficulty of procuring bilious evacuations, that nature was committing suicide by filling the bronchial tubes with an immoderate secretion. I returned to the little sufferer, and resolved to try the effect of a bold effort, to arouse the kidnies, the liver, and the skin into a secretory action, hoping thereby to diminish the bronchial secretion. The phenomena the system exhibited by the medicine previously given, afforded the data from which I made, as I thought, a fair calculation of the quantity of medicine which would be necessary

to produce this effect. I now gave the little boy, who seemed to be struggling in the agonies of death, three grains of tartar emetic with one hundred grains of calomel at one dose. It did not puke him, for so torpid was the system, that it did not seem to have the power necessary for throwing up the contents of the stomach. Although assisted by injections, it operated on the bowels but *once*, yet it was a copious, black, bilious stool. The disease seemed now to pause in its progress, yet barely to pause. In twelve hours, I repeated the 100 grains of calomel. It operated twice, copiously, and the stools were black. The child now began to urinate freely, the veins of the skin became more full, and its sensibility somewhat returned. The secretion of the tough phlegm began evidently to diminish. In twelve hours more, forty grs. of calomel—operated four times. The next dose, twenty grs. operated four or five times. The next and last ten grs. operated eight or ten times. The child had sore lips when it took the first hundred grains of calomel, and its friends believed that it was at that time salivated, as it had taken several common doses of calomel, yet it recovered without having a sore mouth, and a healthier, heartier child, the city of Natchez does not contain. The whole of the preceding facts plainly show, that calomel, in large doses, exerts a greater power over the more important secretory organs, than smaller doses, and, as proved by Professor Dudley's case, than any other form of mercury. They also show, that the febrile irritation produced by mercury, not only to be in itself pernicious to the system, but that while it exists, the march of disease, whether bilious fever or syphilis, is not at all arrested; and does not become so until the secretory office of more organs than one is restored or preternaturally excited. To depend, therefore, on curing syphilis by small doses of calomel, or the other less eligible forms of mercury, would be to depend on a plan, often uncertain, and sometimes pernicious, and, at best, less efficacious than larger doses—which, by promptly producing secretion throughout the system, are attended with none of the evil consequences of mercurial irritation, and are followed by a speedy removal of the venereal disease. The evil effects of mercury, which Dr. Hamilton has so eloquently portrayed in his late work on the use and abuse of that mineral, form cogent objections to the slow, piece-meal plan of introducing mercury into the system, inasmuch as this method of introducing it, by producing mercurial fever, on which those evil effects depend, is an *abuse* of the remedy, and should not be produced, *even in*

those states of the system, in which the *learned Doctor himself recommends it.* But the evil effects which Dr. Hamilton so much dreads, experience proves, never take place under the judicious, yet prompt and bold introduction of the remedy; because, experience teaches us, that this decisive method of introducing it, so far from producing mercurial irritation or fever, on which the evil effects of a mercurial course depend, produces a directly opposite state of the system, by establishing a gentle, yet general and permanent secretory action throughout the system. Nor are these different effects of mercury in different doses, so very peculiar, strange, or unparalleled. Small doses of opium, repeated at long intervals, it is well known, irritate the system, and produce a state unfavourable to sleep, which could have been readily produced by a decisive dose. So, small doses of mercury, repeated at long intervals, irritate the system, and produce, as some of the preceding facts show, a state of the system unfavourable to general secretion and the removal of disease, which was readily produced by decisive doses. If it be no argument in favour of five drops of laudanum, repeated at long intervals, that sleep is sometimes ultimately produced, neither is it any argument in favour of one or two grain doses of calomel, that secretion sometimes ultimately takes place; inasmuch as both the one and the other could have been more readily produced by decisive doses of either remedy. If extraordinary doses of opium are sometimes required to produce its ordinary effects, so are extraordinary doses of calomel sometimes required to produce its ordinary effects. If the common dose of opium (or doses either above or below it), in certain pathological conditions of the system, be attended with evil effects, so are the common doses of calomel (or the doses either above or below it), in certain pathological conditions of the system, attended with evil effects. If opium, when given at all, should be given in effectual doses, yet graduated according to the existing state of the system, so calomel, or any preparation of mercury, if given at all, should be given in effectual doses, graduated according to the existing state of the system. In recommending a scruple of calomel every twenty-four, forty-eight, or seventy-two hours, as a cure for syphilis, I would, therefore, no more fix the dose at that precise quantity, than the dose of laudanum, as a soporific, at precisely half a drachm. It has not been "by assuming principles, but by observing phenomena, by comparing them, and by discovering their agreement or

* Brown's Philosophy.

disagreement, and order of succession,"* that I have arrived at this plan of treating lues venerea, a plan, so far as my experience goes, under which the disease invariably yields in half the time required by the course of treatment commonly pursued, and at the same time is free from its danger and inconvenience.

ART. II. *Case of Extraction of an Infant from the Abdomen.* By BENJAMIN DAY, M. D. of Bladensburg, Maryland.

THE subject of the following case is a coloured woman belonging to Mrs. Vorlenda Hillary, of this vicinity, aged about forty-eight years, and extremely enervated by symptomatic anasarca. I visited her about three or four months since, whilst in a state of parturition. On examination per vaginam, the os uteri was found undilated, though informed by the attending midwife that the liquor amnii was already evacuated, and that the unfortunate woman had suffered with parturient pains for the last two or three days, through the whole of which time she had not experienced the smallest motion of the infant. To these symptoms was added a slight sanguineous discharge from the vagina. According to the woman's own calculation, (which should be tolerably accurate, as she has borne and nurtured ten or twelve children) as well as the calculation of the family, she had been pregnant about nine months. Finding the uterine efforts so slow, and the os uteri rigidly contracted, I returned home, leaving with her some mild medicine, calculated only to obviate the sanguineous discharge, should it prove excessive. About one or two weeks subsequent to this period, I was again consulted. I found her suffering still with erratic pains, through the lumbar and umbilical regions, and the os uteri contracted as before. On extending my examinations to the exterior of the abdomen, the idea of the infant having escaped from the uterus into the cavity of the abdomen readily and obviously recurred. This idea I freely communicated to the family; but, in consequence of the unusual occurrence and uncertainty of such anomalous cases, manual efforts were procrastinated, hoping that the event might still prove auspicious, and my idea of the case totally unfounded, especially as her health

appeared somewhat *resuscitated.* Owing, in part, to the distance (which is about seven miles), and the inclemency of the weather, I did not see the woman again for two or three weeks. Hearing, however, in the interim, that her death was daily expected, and having a patient in her immediate neighbourhood, I called on Mrs. V. H. for the purpose of soliciting the privilege, in case of the death of the woman, which appeared almost inevitable, to be permitted to ascertain the real nature of the case. I found the patient extremely emaciated indeed, and in pain almost beyond description, so much so, that her speedy dissolution was hourly anticipated. On an attentive and minute examination again, as to the external appearance of the abdomen, I discovered for the first time, that there existed a very small sinus communicating from near the umbilicus to the cavity of the abdomen, through which, with a little difficulty, my probe found admittance, leaving no doubt on my mind, but that at least some extraneous body existed in the cavity. I accordingly dissected down, and to the establishment or confirmation of my former conjectures, and wonderful astonishment of the family, I dissected from the abdomen the scapula of an infant, almost wholly denuded of its integuments. Believing, verily, that without speedy relief she must inevitably and quickly die (as the pain was too violent to be endured many hours longer), I proceeded forthwith, in the presence of Messrs. *Hillary*, *Williams*, and *Wilson*, to extend the incision from about two inches above and to the left of the umbilicus, towards the os pubis, and in the course of the linea alba to the extent of three or four inches, exposing thereby, in part, the cranium of the infant, and through which orifice, I without much difficulty severed the parietal bones of the cranium, and removed them from the cavity. Finding, however, that the opening was insufficient for the extraction of the infant, though its integuments were in a state of putrefaction, I enlarged the incision to the extent of six inches, through which my hand was conveyed into the cavity of the abdomen. I then, without much inconvenience, extracted the infant from the cavity. The hemorrhage was considerable, but not alarming. The wound was adjusted by means of sutures, and dressed in the usual way. It may not be altogether irrelevant, however, to observe, that, owing to the enlargement of the parietes of the abdomen from extreme anasarca, it was found difficult in the extreme to keep the edges of the wound approximated, notwithstanding it was adjusted a second time by means of powerful sutures. It is now, by the process of gra-

nulation, nearly united, and will, no doubt, in the course of about a week, be perfectly well. The woman is now able to walk about—is perfectly free of fever—good appetite, and by the assistance of diuretic medicines, the swelling is nearly subsided. It has been one or two months since the operation. Peritoneal inflammation from the operation was very inconsiderable. She is now in a manner well, at least perfectly clear of danger.

ART. III. *Case of Abortion, procured by Violence.* Contributed by DR. BAXTER, of New York.

A FEW days since, I was called to a girl, aged about seventeen or eighteen years, of florid complexion and healthy appearance; her nurse informed me, that since the day preceding, the patient had had, at three different times, a copious menstrual discharge, with pain so severe, that she had become alarmed. After having seen the patient and questioned her closely, I had no doubt respecting her situation; that she was pregnant; that an abortion had been attempted, and that the pains, which she experienced, were the forerunners of the approaching birth of the fœtus. On making an examination by the vagina, I perceived, at the external part of the left side of the neck of the womb, a protuberance, extremely sensible to the touch, and of very considerable rigidity. I soon ascertained the cause. I obtained an acknowledgment that she had employed a physician (his name was not given), fifteen days since, to cure abortion; that a silver catheter had been introduced per-vaginam, and that since that time, she had experienced those pains, which had increased daily. I foresaw the difficulty which the neck of the womb had to expand, in order that the fœtus might be expelled. I bled her freely from the arm (it was in the morning), and in the evening she was no better; the pains appeard intolerable; the pains of parturition were easily distinguished from those produced by the wound of the uterus; the former being periodical, and the latter constant. I repeated the bleeding, but the next day found her in the same situation, when I administered the ergot, and three hours after, she was delivered of a perfect female fœtus of four months. I could not too much admire the happy effect of the ergot

in this case: the patient is doing well, with the exception of tight pains which she experiences, probably from the wound.

Remarks by the contributor of the paper.

As in this case the os tincæ was found wounded, the membranes ruptured, and danger of the recurrence of hemorrhages every moment threatened; no hope could be entertained of preserving the fœtus. The life of the mother was at risk, there was no other course to pursue, therefore, but the immediate expulsion of the contents of the uterus; the event proved the choice of the ergot a happy one, as well as the active power of that medicine, the power of which on the impregnated or unimpregnated uterus, I have long been convinced of.

That much of the pain and suffering was occasioned by the swelled and lacerated state of the mouth of the womb, cannot be doubted. The names of the physician and others concerned in this abominable act of violence, were not divulged.

The course of conduct required of the physician by moral obligation, is extremely delicate and responsible; while, on the one hand, duty to society would require that the perpetrators of the deed should be exposed to justice; on the other the confidence reposed in him prevents the exposure of the patient to public scrutiny, which such a course would procure, he stands in the situation of the confessor of the church of Rome, hearing the crime acknowledged, and unable to bring it to punishment. It may be justly feared, that the too free use of the medicine here resorted to, may in such cases prove an encouragement to vice and licentiousness.

Art. IV. *Case of Hernia.* By Dr. P. Hayes, Canandaigua, New York.

The paper, by Dr. Jameson of Baltimore, in the last number, in which much is said respecting the danger of removing a part of the omentum, in the operation for strangulated hernia, under certain circumstances, has induced the communication of the following case, which, although not precisely similar, may have some weight in deciding, in the minds of surgeons, what should be done under similar circumstances.

Mrs. D. had an inguinal hernia, for more than 22 years. It was often troublesome, but hitherto the intestine had been reduced without much difficulty.

Saturday evening, Sept. 20th, 1823, symptoms of strangulation came on, viz. enlargement of the tumour, violent pain and vomiting. Her physician tried the ordinary means of reduction, and did not call a consultation until Tuesday following, when I saw her in company with the attending and another physician. The case was now urgent; but, by their advice, various other means were tried to effect reduction, until Wednesday morning, when the operation was determined on.

The hernial tumour extended from the right labium backwards, and upwards towards the crest of the right ilium, about eight inches in length, and from two to three in breadth.

The first incision was made through nearly the whole length of the tumour, passing the ring towards the labium, about an inch. The sac was opened, when a large mass of omentum was found to occupy the external side of the ring, and the principal part of the sac; the internal side of the ring, and anterior part of the sac, being occupied by about three inches of the ilium, of the colour of venous blood, but without spots, and filled with flatus. The sac adhered throughout. The intestine had formed a slight adhesion to the ring, which was cautiously broken. The ring was so completely occupied, that nothing but the extremity of the nail of the left index could be introduced within any part of the stricture. With a sharp-pointed bistoury, guarded by the nail, I cut the stricture, until the finger passed in about an inch, and then completed the incision, both of the external and internal ring, with the probe-pointed bistoury, and reduced the intestine.

The omentum now occupied the opened sac, to which it adhered in many places; but these adhesions were all separated without difficulty, except that to the outer side of the ring, which was quite firm, and occupied a space probably of more than a square inch. What was to be done? There was no method of separating the adhesion, without cutting through the whole of it; and if that should be effected, it was doubtful whether the mass of omentum could or ought to be returned, it being pretty large, and some processes of it in a gangrenous state. After some hesitation, I determined on removing it close to the adhesion, leaving the cut extremity in the ring; this would prevent its immediate retraction, allow any bleeding vessels to be taken up, and the gangrenous tags in the ring to be thrown off through the wound. The incision was begun close to the remaining adhesion, at the external edge of the omentum, and, partially unfolding it, was carried through its whole breadth. The part removed weighed five ounces. Scarcely a drop of blood flowed. The wound continued a little open, until the sloughs came away, when it healed, and the patient had a favourable recovery.

The omentum had nearly the feel described by Dr. Jameson, but was not so brittle.

Canandaigua, May 18th, 1825.

ART. V. *A singular Case of extra-uterine Fœtation, and apparent Super-Fœtation.* By Dr. DANIEL H. TREZEVANT, of Columbia, South Carolina.*

I WAS called upon on Tuesday, the 10th of May, to open a negro woman belonging to Dr. James Buckell, who died very suddenly, without any particular symptom denoting immediate danger, and who had previously enjoyed excellent health. She had complained a few days before of being costive, for the relief of which her master administered a dose of castor oil. This removed the difficulties under which she laboured for a day or two, when her bowels again becoming costive, another dose was given. On Tuesday, she expressed herself as entirely relieved, and about 12 o'clock

* We are indebted to the politeness of Professor M'Neven, of New York, for the following interesting paper, forwarded to him by the author, with the request that it should be published in the Medical Recorder. Its great interest and novelty will no doubt excite the attention of our readers.

told her master that on the ensuing morning she thought she would be perfectly well. About three, she complained of a severe pain in her back, and a little after, said that she felt as if something had burst within her. She died very soon after. She was supposed to be about five months advanced in pregnancy.

Upon opening the parietes of the abdomen, a considerable quantity of coagulated blood was found, covering the anterior surface of the intestines, and lying between the intestines and sides. The whole abdominal cavity and interstices were filled with bloody serum. Upon removing the coagulated blood, a fœtus of between six and seven months was discovered among the intestines. It was perfect in its form, and measured nine inches in length—the limbs, hands, and feet, remarkably large—the umbilical cord was thick, long, and twisted round its leg. It had burst the membranes in which it had been enveloped, and thus escaped into the abdomen. Upon more minute examination, I discovered that this was an extra-uterine fœtus—that it had been contained either in the right ovarium, or fallopian tube. Desirous of fully examining this fact, I removed the whole contents of the pelvis, by separating them from their attachments. No trace of fallopian tube or ovarium could be discovered on that side. The sac in which the fœtus had been enveloped, was in the situation where they ought to have been, but either it was formed itself by the expansion of one or the other of these organs, or the pressure from so large a body for such a time, and the adhesions which had taken place to the adjoining viscera, prevented their being recognized. Upon examining the sac which contained the fœtus, the membranes were very distinct, the cord perfect, and its blood vessels-ramifying on the surface and dipping into the placenta. The vessels were very turgid. This fœtus evidenced no mark of decay—its limbs were plump and full, and, through its almost transparent skin, the blood vessels might be seen filled with red blood.

Upon removing the membranes from their attachment, for the purpose of examining the placenta, I was struck with the appearance of a large vesicle, about the size of a walnut, on the outer surface of the membranes of the fœtus. Upon opening this, a small fœtus, of about from six to eight weeks old was discovered. This fœtus was also perfect. It had its investing membranes, a jelly-like cord, and a placenta, which it appeared to have commenced forming on the external portion of the investing membranes of the larger one.

This smaller one had every appearance of having been recently alive—its body was full and plump—all the features expanded and perfect—the nose, eyes, and mouth distinct—and red blood evident in its vascular system. It showed no mark of decay. In what manner can we explain this singular phenomenon, except on the almost exploded doctrine of super-fœtation. Here we have two fœtuses, each perfect, according to its size, the larger measuring nine inches, the smaller one inch, exclusive of its lower extremities; both extra-uterine; neither presenting the smallest evidence of decay. It cannot be said, that these were the product of the same conception, and that one died at six weeks old, while the other continued to grow. This could not have been the case, and the fœtus remain so plump, look so fresh, and show the red blood in its vessels, for I hold it a fact which admits of no dispute, that with the extinction of the vital principle, the circulation must cease, and consequently the skin and soft parts will be greatly changed from their natural appearance, and the blood not show itself in the cutaneous vessels. I am well aware, that where the fœtus dies, it does not necessarily become putrescent; but I also feel well convinced that it is impossible for it to remain with the usual plumpness of health, after having been deprived of its vitality for more than four months. To account for this singular phenomenon, then, we must admit of the possibility of super-fœtation. Upon slitting open the vagina and uterus, to examine the latter viscus, we found it almost in a natural state; its neck was filled with a thick, ropy, tenacious substance, but, so far as we could discover, there was no appearance of the deciduous membrane of Hunter, which, it is said, usually is formed in extra-uterine fœtation. The uterus was sound, except at the fundus, and contiguous to the sac containing these fœtuses; there its parietes were thinner, and its substance easily lacerated. It was not expanded much beyond its natural size.

It was impossible to make very minute examinations, from the state of the other parts. I have already remarked, that we could not discern the right fallopian tube, nor ovarium. This may have arisen from the immense distension which they underwent to enable them to contain a fœtus of nine inches long. This distension altered their appearance, so as to prevent their being recognized. In addition to the distension, pressure on the contiguous parts had caused considerable adhesions, and the anterior portion had burst.

Another sac contiguous to the one containing the fœtus, was also discovered, and I am not sure but what they com-

municated, but being intent on examining the other parts, this was not attended to until it became impossible to ascertain if such was the fact. A portion of coagulated blood was found in this cavity, and it appeared to have been the source from which the hemorrhage took place.

The mother's vascular system was completely emptied. The cavæ contained no blood, nor did the heart appear to have any in its right cavities.

The viscera of the mother were in every respect healthy. There were no traces of disease either in the thoracic or abdominal cavities; the rectum alone was injured. This was of a dark, blackish colour, though by no means easily torn. In the latter part of the dissection, I was assisted by Dr. James Davis, who, together with many other persons, witnessed every part of the above statement. The parts are now in my possession.

ART. VI. *Case of Rotatio or Chorea, treated Successfully by Rubbing Tartar Emetic Ointment into the Scalp, and along the course of the Vertebral Column; with Observations on the Pathology and general Treatment of Diseases of the Muscular Movement.* By ROBERT HUNTER, surgeon, and lecturer on Anatomy and Surgery, Glasgow.*

ON the 12th of April last, I was requested to visit Jean Brown. When I arrived at her lodgings, I found her in bed lying upon her back, and her head rolling from side to side upon the pillow, with a quick, regular, and uninterrupted movement. She was perfectly sensible, and could reply to any question that was proposed to her. I had not continued long in the apartment when the motions of the head became obviously accelerated; and one of the relatives hinted that a *fit* was about to appear. The words were scarcely uttered, when, with a strong convulsive movement, the patient sprung from her back, and sat up in bed. The rotatory motions of the head now became furious and alarming. They were executed with such immense rapidity, that it was difficult even for the eye to follow them. She appeared absolutely to be looking backwards and forwards, and in every direction at the same instant. The movements, while in the sitting posture, were not confined to the head, for the

* From the Edinburgh Medical and Surgical Journal, for April, 1825.

whole trunk likewise partook of the rotatory motions, the breech being the pivot upon which the whole turned. These convulsive motions continued about a minute, when they took a new but equally strange direction. The flexor and extensor muscles of the head and trunk were alternately called into action; and, without the breech of the patient moving from its first position, her head was rapidly carried forwards to her knees, and backwards to the pillow, for about half a minute, when the paroxysm ceased, and left the patient greatly exhausted.

Such is a short description of a *paroxysm* with which the patient was affected when I first saw her; and I was informed that she had been subjected to above fifty that day, of a similar description. For the last three months the disease had been fast gaining ground; and so anxious and affected was the patient about the result, that in the most plaintive accent she said she would submit to any operation however painful;—that she would even allow herself to be opened alive, to get quit of so distressing a malady.

On relating the case to my friend Mr. Stirling, one of the district surgeons of this city, he proposed to place her upon his poor-roll, and proffered his assistance in the treatment of the case. I of course eagerly embraced his proposal.

On the 19th of April we visited the patient, and took the history of her case. She is about 23 years of age, unmarried, and of a leucophlegmatic habit. Has been unwell for the last seven years, during which period she had been three times in the Glasgow Royal Infirmary, and likewise under the care of several eminent practitioners in town, from all of whom she received only partial benefit. The disease, she says, commenced in the lower part of the belly, in the uterine region, where she still complains of pain upon pressure, the pain being slightly increased at every menstrual period. No enlargement or hardness of the uterus, however, could be detected by any species of examination. After the uterine region had been affected for some time, an eruptive disease appeared on the external generative organs, the exact nature of which we could not learn, except that the eruptions are numerous, and resembled pimples. A few months afterwards, a pain commenced in the region of the liver, which has never been altogether removed, although it has frequently been relieved by the application of blisters. A seton, which still remains, was some months ago inserted in the hepatic region, and when it discharges copiously, is of con-

siderable benefit. No perceptible enlargement of the liver exists.

The disease in the uterine and hepatic regions having continued about a year, a shaking commenced in the right arm, which, in the course of two months, likewise affected the left, and in three months more extended to the head, and gradually spread over the trunk and lower extremities. After the tremulous movements had thus extended to all the muscles of the body, convulsive paroxysms (such as I have described at the commencement of this paper) soon supervened. The paroxysms at first were short, and appeared after long and stated intervals. The intervals, however, gradually shortened till the time when I first visited the patient, when the paroxysms were so numerous, that she was scarcely ever free of them.

Whilst lying on her back, as she usually did when no paroxysm was present, the tremulous movements were generally confined to the head, which kept it rolling from side to side upon the pillow from morning to evening, and sometimes from evening to morning, with a regularity which forcibly reminded me of the vibrations of a pendulum. When she lay upon her right side, her left side became affected with a violent tremor; and when she lay upon her left side, the right exhibited similar phenomena. As soon, however, as she turned upon her back, the movements were again confined to her head. Sometimes the motions of the head ceased, when one or more of the extremities became instantly affected with a similar kind of tremor; and when the tremors of the extremities ceased, or were arrested by force, the movements instantly recommenced in the head.

After these tremulous movements had continued for some time, a convulsive paroxysm generally arose without any apparent cause; it could, however, be easily induced at pleasure. So easily, indeed, could it be induced, that any attempt to interrupt the motions of the head, such as by the application of the finger to the hair, or head-dress of the patient, brought it on with tremendous violence; and if the paroxysm itself was interfered with, even in the slightest degree, its violence and duration were always increased. The very idea of being touched during a convulsive paroxysm, was contemplated by the patient with terror.

She frequently complained of dimness of sight,—of hardness of hearing, and of a considerable bluntness or torpidity of all the external senses. Her pulse was natural with regard

to frequency, but weak and sometimes intermitting. Her tongue clean, but her bowels tending to costiveness.

As the nervous system appeared to be considerably disordered, I proposed that the patient's head should be shaved, and tartar emetic ointment rubbed on the scalp, and along the course of the veterbral column. As this treatment was calculated to affect at once the brain and spinal cord, the root of the nervous system, one ounce of the ointment was accordingly ordered to be rubbed, at first, into the scalp only. Owing to some mistake, a smaller quantity of the ointment than prescribed was rubbed in, on the evenings of the 19th and 20th. Little effect was accordingly produced on the scalp, and none on the disease. On the evening of the 21st one ounce more of the ointment was used, which, on the 22d, produced a large crop of pustules, with a decided effect upon the disease. The rolling of the head upon the pillow was now comparatively trifling, and she mentioned, with great exultation, that she had been affected with three paroxyms only during that day. One ounce of the ointment was again ordered to be rubbed into the scalp. On the 23d the patient was obviously fast improving; the motions of the head were scarcely perceptible, and the convulsive paroxysms reduced to two daily. One ounce of the ointment was ordered to be rubbed in *daily* till the scalp was completely covered with eruption.

This treatment was continued from the 23d till the 28th, during which period the patient remained without a paroxysm. On the 28th the tremor of the left superior extremity was very considerable, and often alternating with tremor of the head. She felt her general health worse, and complained of nausea and uneasy sensations about the head, which she believed were the precursors of a convulsive paroxysm. The experiment of interrupting the motions of the head was unluckily made, which induced a violent fit; but we were of opinion that it did not equal the former paroxysms, either in intensity or duration.

As the scalp was completely covered with eruption, the treatment was now extended to the region of the spinal cord, and one ounce of tartar emetic ointment ordered to be rubbed daily into the skin, from the occiput to the sacrum, till great irritation was produced.

From the 28th till the 30th, the quantity of ointment above specified was rubbed into the back every evening, without producing much effect upon the skin, or any farther change upon the disease. On the 1st of May, however, the

patient complained of great pain from the ointment. Her back was covered with pustules, and the shaking now confined to the left fore-arm and hand. When the hand was kept from moving by force, a slight degree of motion was still induced in the head; but when the muscles which are inserted into the occiput were likewise compressed, the motions of the head ceased also. This was the first time, for the last nine months, that all irregular motions of the body, by any contrivance whatever, could be made to disappear.

From the apparent good effect of momentary compression, a bandage was tightly applied from the fingers to the shoulder, for the purpose of trying the effects of a more equable and permanent compression than could be made with the hand. On the 2d of May, the tremor was still confined to the left fore-arm and hand, but not perceptibly diminished in violence. As the bandage was of no benefit, it was removed. The patient, however, was in much better general health, and higher spirits, than we had ever seen her. At our request, she rose from her bed and walked with a steady step across the room. Either from agitation or the effects of muscular exertion, she had scarcely sat down again when a violent shaking commenced in both superior extremities. When she crossed her arms, and pressed them firmly to her breast, the shaking passed from the upper to the lower extremities; and when her feet, by external force, were prevented from moving, the shaking returned to her arms. No tremor of the head took place. These tremulous movements continued only while she sat out of bed; for when she laid herself upon her couch, the motions were confined, as before, to the left fore-arm and hand. As the patient laboured under considerable debility, probably the united effects of confinement and disease, at the suggestion of Mr. Sterling, tonic medicines were had recourse to, and half a drachm of the carbonate of iron three times a day was prescribed. Notwithstanding the pain which she felt from the state of her back, half an ounce of the ointment was daily rubbed in upon the back till the 7th of May, when her general health was found improving, and her strength so far increased that she could sit, and even walk in the open air for some time. The tremor, in a very slight degree, still existed in the left fore-arm and hand; and she complained, occasionally, of pain in the right hypochondriac and uterine regions.

The eruption on the scalp being now nearly healed, one ounce of tartar emetic ointment was ordered to be rubbed into the upper and inner part of the thigh, for the double purpose

of removing the uterine irritation, and preventing a relapse from the drying up of the head.

On the 11th of May, the tremor left the arm and every part of the body. The patient was so well that she could sit up in bed, knit stockings, sew, or engage in any similar domestic employment. She complained, however, of considerable general debility, as well as pain in the right hypochondriac and uterine regions, although she conceived, that the pain in the uterine region, since the application of the ointment to the thigh, was neither so violent nor so constant. One ounce of tartar emetic ointment was ordered to be rubbed into the other thigh, and the carbonate of iron to be continued.

On the 20th of May, when the patient was next visited, she was found nearly well. She could sit out of bed, and even walk about the house for hours together. She thought she was as free of "the nerves" as ever she was in her life. To prevent a recurrence of the disease, she was recommended to have her head shaved a second time, and an ounce of tartar emetic ointment to be rubbed into the scalp, and along the course of the spine; to continue the carbonate of iron; and as medical advice was no longer regularly required, she was urged to go into the country to improve her general health.*

The successful termination of this long continued and extraordinary case is attributable, I conceive, to the tartar emetic ointment alone. Every *tonic* of note, and almost every ingredient in the Pharmacopœia, had been tried for the last seven years, under the ablest management, and tried in vain. As soon, however, as the eruption appeared on the scalp from the use of the ointment, the disease was obviously checked; and as the same treatment was continued and extended over the course of the vertebral column, the disease gradually diminished in violence, and at last disappeared.

I have presumed to call the disease *Rotatio*, as being expressive of the particular kind of movement which constitutes the principal symptom of the disease. It is undoubtedly a form or modification of *Chorea*, but so different from the common form as to be easily mistaken for a different affection. "Chorea" is a term so vague and undefined as to be applicable to almost any kind of convulsive movement; and, accordingly, we find it applied to diseases of the most opposite descriptions—to diseases of the mind as well as those of

* Mr. Hunter, in a letter of the 29th November, 1824, says, that he is now fully justified in considering the cure to be complete; as, during the intervening six months, the patient has not had the slightest tendency to relapse, and is now strong and healthy.

the body. "Chorea Sancti Viti" was at first introduced into medical nomenclature, according to Horstius, in consequence of a cure said to be performed on women of disordered mind, who repaired to the chapel of St. Vitus, near Ulm.

Every practitioner must have observed the common form of chorea, so admirably described by Dr. Hamilton.* But there are certain forms and modifications of the disease, so uncommon, that many in the profession, I am persuaded, have scarcely heard of them. They are at the same time so curious that they deserve some consideration.

Frequently do we find chorea complicated with various disorders—at one time with some strange mental aberration, as in the case related by Thermier, the patient being of a deep melancholic temperament, and the limbs kept in a state of continual snatching and trepidation†—at another time, with the hysterical diathesis, and receiving some strange modification from that disease. Dr. White of York has given us a very striking example of this mixed affection, as it appeared in a lady about 42 years of age. She complained of violent pain in the right side of the face, and of universal erratic aches and soreness. There was a scorching heat all over the skin, except from the feet up to the ankles, which were as cold as marble. Had frequently a violent pain in loins, which often shifted from hip to hip, the leg of the aching side having been so much affected with numbness, that she dragged it after her in walking. She faltered at times in speech, but this was generally of short duration. All the muscles of the body evinced in succession convulsive motions. Thus her face was first affected; then her nose, eyelids, and head, which was thrown forcibly backwards, and often twitched from one side to the other with exquisite pain. From this quarter the convulsive action removed, first into one arm and then into the other; after which, both legs immediately became convulsed. In this manner all the parts of the body were affected by turns. She was at all times perfectly sensible, and knew what limb was going to be attacked next, by a sensation of something running into it from the part already convulsed, which she could not describe in words. "No words," says Dr. White, "can convey an adequate idea of her odd appearance; and I do not in the least wonder, that, in the times of ignorance and superstition, such diseases were ascribed to supernatural causes and the agency of demons."‡

* On the utility of Purgative Medicines, cap. iii. † Consil. lib. ii. cap. xi.
‡ Edinb. Med. Comment. vol. iv. p. 326.

In his excellent work De Sedibus, &c. Morgagni relates a singular species of the disease. It is known by some authors under the name of Malleatio, the convulsive paroxysm principally consisting of a striking of the knees with one or both hands, as with a hammer. In Morgagni's case, the convulsive movement passed on to the sound hand, if the finger of the affected one was extended, and when the motions were attempted to be arrested by force, the convulsions became both more violent and general.

A still more singular form of the disease is said to occur in some parts of the north of Scotland, and is described in the following terms. "Those affected first complain of pain in the head or lower part of the back, to which succeed convulsive fits, or fits of dancing, at certain periods. During the paroxysm, they have all the appearance of madness, distorting their bodies in various ways, and leaping and springing in a surprising manner, whence the disease has derived its vulgar name, "Leaping Ague." Sometimes they run with astonishing velocity, and often over dangerous passes, to some place out of doors, which they have fixed on in their own minds, and then drop down quite exhausted. At other times, especially when confined to the house, they climb in the most singular manner. In cottages, for example, they leap from the floor to what are called the baulks, or those beams by which the rafters are joined together, springing from one to another with the agility of a cat, or whirling round one of them with a motion resembling the fly of a jack."*

A still more singular case is related by Dr. Watt.† It is probably the most extraordinary of the kind on record. He calls it Periodical Jactitation. The patient was a lively girl of about 10 years of age. The disease commenced with an intolerable pain in the head, and constant inclination to keep her body in the erect posture. About a month after the commencement of the disease, she was seized with a propensity to turn round upon her feet like a top, and felt pleased and gratified when her relations attempted to increase the velocity of her movements. After a month's continuance, these motions ceased, when the headach returned with increased violence. Two months after this, a new kind of convulsive motion arose. It consisted in the patient lying across the bed, and turning round like a roller, moving in this manner rapidly from one end of the bed to the other. These motions were not confined to the patient whilst in bed. On the

* Edinb. Med. and Surg. Jour. Vol. 3. † Medico. Chirurg. Trans. Vol. 5.

floor of the house, in the open air, and even in the shallow part of a river, where they tried the experiment, the motions still continued with uninterrupted regularity. After continuing in this state for about a month, the convulsive motions assumed an entirely new appearance. The patient now lay upon her back, and, by drawing her head and heels together, bent herself up like a bow, then allowing her head and feet to separate, her buttocks fell with considerable force on her bed. She repeated the same movements twelve or fourteen times in the minute, sometimes for fourteen hours together. These motions continued for about five weeks, and were succeeded by others of a still more whimsical description. She was now seized with a propensity to stand upon her head, with her feet perpendicularly upwards! As soon as her feet gained the perpendicular, all muscular exertion was withdrawn, and the body fell down as if dead, her knees first striking the bed, and her buttocks striking her heels. This was no sooner done, than she instantly mounted up as before, and continued to exercise herself in this manner, sometimes for fifteen hours a day, at the rate of from twelve to fifteen times in the minute.

The principle which ought to guide us in the treatment of chorea, has, I think, never been sufficiently explained. The profession is certainly much indebted to Dr. Hamilton for calling their attention to the state of the intestinal canal in this, as well as in many other disorders; but it must be admitted, that a deranged state of the intestinal canal is only an occasional exciting cause; and, even when this cause has for some time operated, how often do we find the removal of the cause producing no apparent effect upon the disease? Our patient was tried for a long period, we understand, with purgatives, without receiving the smallest benefit.

Tonic and alterative medicines are as frequently useful in this disease as purgatives; and the reason probably is, that debility of an organ, or of a system of organs, is often an exciting cause, and, by raising the energy of a part, or of the whole system, the exciting cause is removed, and the parts restored to their natural and healthy function. At the same time, how frequently do we find the most powerful tonics, such as the preparations of iron, of zinc, of copper, of silver, and of arsenic, of no avail? And when they do succeed, it is most frequently by effecting, after long and protracted courses, what I consider can be done in a few days by external applications.

Another plan of treatment is founded on the principle of allaying the irregular muscular movement by the use of anti-

spasmodics and sedatives, such as musk, belladonna, foxglove, and opium; but the disrepute into which this practice has fallen, is a manifest proof that it never has been of great or essential efficacy. The utmost, I believe, that can be said in its favour, is, that it may produce a palliative, but rarely a radical effect.

The treatment of chorea, by rubbing tartar emetic ointment into the scalp, and along the course of the vertebral column, is, so far as I know, new, and promises, did we dare to generalize from one case, to be remarkably successful. The treatment is founded on what I consider to be sound and incontrovertible general principles, and, what is also of very great moment, the same treatment, I presume, will be found applicable to every variety of morbid muscular movement.

From the brain and spinal cord, the nervous fluid or influence, on which muscular motion is in a great measure dependant, is incontestably derived. The nerves are merely the conductors of this fluid. It is perfectly clear that they themselves are incapable of imparting it; for, insulate a nerve from the brain or spinal cord, and the muscles upon which that nerve is ramified are instantly and permanently paralyzed. Admitting, then, the brain and spinal cord to be the fountain from which all nervous influence springs, we can find no difficulty in conceiving, how a structural or functional derangement of these parts should give rise to irregular movements of the muscular fibre. If this fluid were not duly secreted, or were prevented from arriving at the muscles, paralysis would be the consequence: if it came forth too sparingly, or in an irregular manner, weakness and tremulous movements would be induced: or were it sent out too copiously, convulsions would be the result. In all *idiopathic* diseases of the muscular movement, we must consider the brain and spinal cord as the seat of the affection; and the only rational method, surely, of counteracting and curing such diseases, is to recal the brain and spinal cord to their natural and healthy function.

It must be admitted, however, that the great majority of diseases of the muscular movement are *symptomatic* only, or dependant merely on some local ailment. The irritation of teething, of worms in the intestinal canal, or of a scratch or puncture on the hands or feet, will give rise both to partial and universal convulsions. In such cases, the convulsions are not dependant at first on any derangement of the brain and spinal cord, but probably on some local derangement of the conductors of the nervous influence, that is to say, of the nerves of the part. The irritation which acts upon the nerves

of the part, probably modifies the quantity, or may even vitiate the quality of the nervous power; and this morbid action, whatever it may be, once commenced, is apt to spread like almost every other morbid action, till it affect the root of the nervous system itself. It is only on such supposition, I presume, that we can account for the fact, that with the removal of the local existing cause of any convulsive disease, the convulsive movements do not always cease.

I do not wish to be understood as inculcating, that the removal of the exciting cause in the treatment of symptomatic convulsive diseases is of no avail. I consider the removal of the exciting cause as of the first importance; but after the cause has been removed, and the convulsive movements still continue, I could wish it enforced that our attention should immediately be directed to the root of the nervous system itself. There is one grand reason which I think should induce us to attend to the state of the brain and spinal cord, even in symptomatic convulsive diseases, I mean the tendency which any irritating cause has to act upon the extreme points of any nervous chain to which it may be applied. In inflammation of the liver, the pain is felt principally in the shoulder, at the most remote point of the phrenic nerve from the seat of the disease. In calculus of the bladder, one of the most constant symptoms is an itching in the *glans penis*. Worms in the intestinal canal create, it is well known, an irritation in the lining membrane of the nostrils. The sudden application of cold water to the surface of the body, will excite the bladder to contract and expel its contained fluid. These and other facts that might be mentioned, are all explicable on the general principle, that any irritating cause whieh acts upon a chain of organs connected together by nervous sympathy, the pain and danger are seated uniformly at one of the extremities of the chain, and one of the extremities cannot long be affected without the disease extending to the other also. In marasmus, for example, we find the disease commencing sometimes in the digestive, and sometimes in the assimilative organs;* but in whatever extremity of the chain the disease commences, it is generally not long ere the other extremity of the chain is also affected.

In these convulsive diseases in which the irritation is confined at first to one organ, let us suppose the stomach or uterus. These organs, then, may be considered the extreme points of a set of nerves, whose other extremities arise from

* Good's Study of Medicine.

the brain or spinal cord. When the irritating cause has operated for a certain period on any of these organs, the irritation is imparted by sympathy to the other extremity of the chain, that is, to the point of the brain or spinal cord from which such nerves originate; and the irritation, when thus begun, will extend, if not counteracted, from that point over the whole root of the nervous system. This fact, I think, is beautifully exemplified by what takes place in tetanus. A man receives a scratch or puncture on the great toe. In a few hours he is affected with a spastic action of the muscles of the lower jaw. Here the irritating cause tells first upon the extremity of a long and complicated chain of nervous fibres, which, however, can be easily traced. The irritation travels first either along the course of the great sacro-sciatic, or anterior crural nerve, till it reaches the pelvis. In the pelvis numerous branches of the great sympathetic unite with these nerves. The irritation passing on then to the great sympathetic, finds its course along a continuous line of nervous matter from the pelvis to the cranium. It is well known, that the great sympathetic has a direct communication with the fifth pair; so much so, that it is usually said to take one of its origins from that pair. The irritation, then, would pass from the great sympathetic to the fifth pair; and according to the general law which we have already noticed, would tell more particularly upon the remote branches of that nerve; that is to say, upon the branches which ramify upon the temporal muscle, and which afterwards pass to the crown of the head.

This, it must be admitted, will only account for the spasmodic action of the temporal muscles: How, then, do we account for the spasmodic action, in tetanus, passing on to the other muscles of the body? After the irritation, then, has continued for some time at the extreme ramifications of the fifth pair, the same morbid irritability has a tendency to pass to its other extremity, that is, to the origin of the nerve in the brain. The brain at that point becomes affected, and the diseased action extends over the brain and spinal cord, when all the muscles of voluntary motion become influenced by the same convulsive movement. If this view of the pathology of tetanus be correct, our curative means should be principally directed, 1*st*, to that part of the body where the original irritating cause acted; 2*dly*, to the muscles of the lower jaw; and, 3*dly*, to the brain and spinal marrow: and the grand curative indication, I conceive, should be, to excite

a new action in the immediate neighbourhood of all these parts.

The indication of exciting a new action in the vicinity of the brain and spinal marrow, is not applicable to tetanus only, but to all diseases which consist of an irregular action of the muscular system. Let us suppose, that all such diseases may be arranged into three classes.

1*st*, When the muscular action is weak and tremulous.

2*dly*, When that action is strong and rigid. And,.

3*dly*, When it consists of a mixture of both; at one time weak and tremulous, and at another strong and rigid.

Some physiologists have believed, that the flow of the nervous power, in the healthy state, is an undulatory course, with short and irregular pauses between each undulation; while others have maintained, that it is sent forth in a continuous stream. It is unnecessary at present to enquire which of these opinions is correct, or whether either of them is well founded. It is enough for our present purpose to suppose, that when the nervous power is sent forth in smaller quantities than natural, the tonic power of the muscles cannot be permanently supported, and a tremor or oscillation takes place, just as a shaking of the hand occurs after powerful and long-continued exertion, when the nervous supply is not adequate to the demand. On this principle alone, I think, all diseases of the first class may be accounted for.

When the nervous influence is sent forth too copiously, a high and long-continued action of a muscle, or set of muscles, is induced, giving rise to diseases of the 2d class.

In the great majority of cases, there is a mixture of the tremulous and convulsive movements, which forms our 3d class of diseases. And this fact, more than any other, has tended to convince me, that all irregular movements of the muscular system are principally dependant upon an irregular supply of nervous power to the muscular fibre. After the nervous power has been sent forth for some time too scantily to maintain a tonic action in the muscular fibre, and thus produced a tremor of a part, or of the whole system: From the former retardation, probably, it rushes forth afterwards, at intervals, in copious profusion, and thus occasions in the muscles, which were formerly tremulous, rapid and strong convulsive movements.

If there is any truth in these observations, the state of the brain and spinal cord, in all diseases of the muscular movement, above all other circumstances, should be attended to; and the only rational method of breaking up the morbid ac-

tion which obtains in these parts, is to excite a new action, either in the diseased parts themselves, or in their immediate neighbourhood.

Morbid muscular movement may be occasioned by a diseased state of the brain, or its prolongation; by a diseased state of the tunics which surround these; or by a diseased state of their bony encasement. At a future time, I shall prove the truth of these observations, by references to a number of important cases and dissections.

The grand indication, then, being to excite a new action in the vicinity of the brain and spinal marrow, different plans of treatment will suggest themselves to different practitioners. I have indeed a great partiality for the use of tartar emetic ointment; but I do not however suppose that it possesses any specific virtue over such diseases. Blisters—the moxa—the actual or potential cauteries, will produce, in all probability, the same effects; and in some diseases which run their courses with uncontrollable fury, as tetanus or hydrophobia, the potential or actual cautery may be found preferable to all external applications. But for the majority of diseases of the muscular movement, the tartar-emetic ointment will be found to possess superior claims to our consideration. It is less formidable in the eyes of the patient even than a blister, and infinitely less so than the actual cautery. It is easily managed and surer, and can be made more speedy in its operation than a blister, not to speak of the friction by which it is applied, and to which, probably, some little efficacy may occasionally be attributed.

47, *North Hanover Street, Glasgow.*

ART. VII. *On the Symptoms and Cure of Croup.* By WILLIAM MACKENZIE, Andersonian Professor of Anatomy and Surgery, and one of the Surgeons to the Glasgow Eye Infirmary.*

THE extreme aptness in mucous membranes, when inflamed, to secrete pus, and in serous membranes to secrete fibrin or coagulable lymph, is generally regarded among the most striking characters of these two structures. It is comparatively so rare an occurrence for a serous membrane to secrete

* From the Edinburgh Medical and Surgical Journal for April, 1825.

puriform fluid, or for a mucous membrane to become coated by a fibrinous exudation, that we are liable to overlook the fact, till we recal to mind the appearances displayed on dissection, in cases of croup on the one hand, and of puerperal peritonitis on the other. Most cases of peritonitis, and also of pleuritis, and indeed of the inflammations of serous membranes generally, are attended, if allowed to run their course, by an exudation of fibrin; but occasionally in pleuritis, and commonly in severe cases of puerperal peritonitis, pus, more or less diluted, flows from the inflamed surfaces. Slight inflammation, such as what occurs in a common cold, pours from the membrane of the windpipe, throat, and nostrils, a copious secretion of puriform mucus; but in that peculiar disease called croup, the same membrane secretes a crust of fibrin; and as far as I know, this is the only instance in the human subject, of a mucous membrane being affected with what may be called a fibrinous inflammation. In experiments upon the inferior animals, something similar is said to take place in other parts of the mucous system; the conjunctiva, for example, appears to secrete fibrin, when inflamed by exposure to the vapour of muriatic acid, and the rectum, when inflamed by irritating injections.

The general symptoms of croup, the extreme danger of the disease, the frequent inefficacy even of the most active and best directed treatment, and the striking appearances on dissection, are familiar to every medical practitioner. There is one fact, however, in the history of this disease, which has not as yet been noticed by authors on the subject; and one means of treatment, which has been repeatedly successful in my own hands, as well as in the hands of those from whom I first received my information of its utility, which I have reason to believe has not come into general use.

The fact to which I refer is, that the exudation of fibrin very frequently commences on the surface of the tonsils, thence spreads along the arches of the palate, coats the posterior surface of the *velum palati*, sometimes surrounds and incloses the uvula; and at last descending, covers the internal surface of the pharynx and œsophagus, the larynx and trachea. That this is the frequent progress of the fibrinous exudation, I am convinced, from the careful and repeated observation of the phenomena during life, and upon dissection.

What is of much more importance, however, than the observation of a pathological fact, is the ascertained efficacy of a means of cure for this disease. Not merely have I repeatedly found the application of a solution of nitrate of silver

completely successful in removing the fibrinous crust, covering the tonsils, velum, and uvula, but I have been led to attribute the rapid alleviation and ultimate removal of all the other symptoms to this remedy, even in cases in which, from the severity and peculiar signs of the complaint, I had no doubt that fibrin had already exuded from the lining membrane of the larynx and trachea.

The solution which I employ is a scruple of nitrate of silver in an ounce of distilled water. By means of a large camel hair pencil, this solution is to be freely applied, once or twice a day, according to the severity of the symptoms, to the whole lining membranes of the fauces. The surface of the tonsils, or wherever else the fibrinous crust is actually in view, will of course be particularly attended to; but I do not hesitate to push the pencil to the lower part of the pharynx. This remedy, so far from being productive of any irritation, beyond the mere mechanical and temporary one attending its employment, uniformly alleviates the symptoms of croup, such as the difficult respiration, the barking cough, and the peculiar anxiety of the little patient. It has evidently such an effect upon the diseased surfaces, both those which it actually touches, and those which are continuous, as to induce them to throw off the false membrane by which they are covered, and it appears also to prevent the farther progress of the exudation.

46, *Wilson Street, Glasgow.*

Art. VIII. *A condensed Abstract of the principal Facts and Doctrines at present known on the subject of Fever.*

It is calculated that one sixth of the human race die annually of fever. Its varieties may be naturally divided as they occur in the warm or cold seasons: the former, comprehending intermitting and remitting fevers, with their intestinal and other varieties, will be considered in the following paper.

The progress of the ancients was so inconsiderable in science, that it is of little importance to quote them upon a subject so difficult and intricate as the origin of general diseases. As an evidence of their prevailing opinions, it may be stated,

that their poets and philosophers refer to heat the plagues and fevers, with which their countries were visited; and show, as far as long continued observation can do, that the connexion between these scourges and natural causes has long been considered as intimate.

In modern times, though the means of discovery have been more extensive, and the results more accumulated, opinion is still extremely vague and general on this interesting subject. In our own country, they have been referred to meteors, comets, volcanoes, and other natural phenomena, in a work, which reflects great credit on its author for learning and research.*

With regard to the effect of comets as epidemic agents, the fact that their masses are so small, that they pass between the planets and their satellites without disturbing them in the least possible degree, shows that their power is slight even when they approach near to these bodies. As epidemics are only sometimes coincident with the appearance of comets, and cannot be proved to follow them invariably, nor to have been universal over the whole earth; which, as the result of a general cause, such as a comet, operating over its whole surface, they should be; we must conclude that their influence is not appreciable, and that they are not to be considered among the causes of these diseases. Meteors and volcanoes, as being more limited in their action, have, we should suppose, still less power. As to the influence of the sun and moon upon epidemics, it is doubtful; and has been believed, in Bengal, where it is principally entertained, to proceed from the tides alone,† which, at the full and change of the moon, overflow the country, and leave it in a marshy state at low water.

The use of impure water has been considered as a cause of these diseases. In some rare instances it produces bowel complaints. It has, however, by no means a general effect; otherwise the use of good water would prevent them, and they would continue in situations where the water was bad throughout every season, in winter as well as summer—neither of which is true.‡ The use of the vegetables of unhealthy climates has also been believed to be the cause: thus Prince Eugene, when he commanded in Hungary, in order to avoid the sickness of that country, had the provisions for his table brought from Germany.§ The productions of sickly

* Webster on Pestilence.
† Dr. J. Lind on the Putrid and Remitting Fever, p. 46, 1776.
‡ Lind, p. 4. § Ibid.

countries, wheat, rye, rice, millet, it may be replied, are eaten without detriment, when carried to those that are healthy; and the use of provisions from countries free from disease, does not prevent sickness in those which are unhealthy.* Thus, the flour of Pennsylvania does not prevent the bilious fevers of South Carolina. Fevers have, however, in some instances, resulted from eating putrid fish, flesh, and vegetables, though very rarely. These diseases are also attributed to intemperance and debauchery. This cause may predispose, but does not act as a primary agent in producing them; for the most abstemious often die of these diseases: and as they do not appear except at particular seasons, though the dissipation in hot climates is much the same at all times, their origin must be traced to some other source. Mineral exhalations have also been alleged as their cause. Mountainous districts would then be equally subject to these diseases with low situations; which is not the case. Besides, if the marshes, their most frequent seats, be drained, these diseases disappear; though the mineral surface, if any existed which could produce these effects, is more exposed.†

Their appearance in the neighbourhood of marshes has led to the belief that putrefaction is the agent which produces them, and all the phenomena attendant on their production accord with this explanation. Let us examine them.

First, then, air and the remains of living bodies are the requisites necessary to produce putrefaction, the degree of which is regulated by the state of the heat and moisture. If these be in proper proportions, the process is rapid: decrease the heat to the point of freezing, and it ceases. When the temperature ascends from about 32° of Fahrenheit, the proper quantity of moisture being present, putrefaction gradually becomes more intense, till, from the increase of temperature, the moisture is dissipated, and it is suspended for want of it: increase the moisture till the surface is covered, and the process ceases from the exclusion of the air.

These, then, are the causes on which putrefaction in its various degrees depends. Does fever increase and decline according to the intensity of this process, and the circumstances which produce it? To ascertain this point we proceed to examine the prevalence of disease, I. From the temperature of freezing, or 32°, to 100°, &c. II. From the point of extreme dryness, to III. That of excessive moisture.

* Ibid.

† Cooke, Med. Rec. Vol. VII. p. 453.

I. *From the temperature of freezing, or 32° of Fahrenheit, to 100°, &c.*

Frost arrests or mitigates putrefaction and these diseases. The yellow, remitting and intermitting bilious fevers, and the plague, are completely banished by it ;* for in the winter they are not seen. Winds from the north, even in summer, render them milder, because these winds abate putrefaction : any cause which abates the heat also diminishes these diseases. Rains in the latitude of 55° north, frequently, by refreshing the atmosphere and the earth, check immoderate exhalations: the most healthful campaigns, on this account, have been those, says Pringle, in which the heat of the air was moderated by frequent showers.† Cleghorn attributes to excessive rains in Minorca the same effect.‡ The marshes in the Antilles, when shaded from the sun, are less dangerous ; when the trees are cut down, the heat produces putrefaction and summer diseases.§ As the temperature rises, remitting and intermitting bilious fevers increase in frequency and intensity in proportion. Summer and autumn,‖ according to the reports of Hospitals,¶ are the seasons for the appearance of these fevers. Vegetation, heat, moisture, and putrefaction, are then most abundant, and fevers are the result. These diseases, for the same reason, appear earlier, and are of longer duration, as we descend from the cold regions of the north to those of the torrid zone. Let us examine the facts on this subject.

On the old continent.—In the low countries these fevers appear in the latter end of July, after the rains : they prevail extensively through August and about the beginning of September, are most violent after hot summers,** and continue till the cold weather. Towards the latter end of October few diseases prevail. The same is true of Germany and Hungary.†† In England they have also the same course, generally, as they have upon the continent in the same latitude—appearing in August and September. As we descend, we find that in the Campania, near Rome, they occupy the

* Rush, Vol. IV. 257. † Pringle, p. 164. Ed. 1810.
‡ Diseases of Minorca, p. 8, quoted by Rush, IV. 250.
§ Alibert, p 178.
‖ Pringle, Observations on Diseases of the Army, p. 151. and Lind on Hot Climates.
¶ Alibert, p. 174, quoting Lind.
** Lind, p. 19. Essay on Diseases. Phil. 1811.
†† Pringle, p. 168.

whole months of July, August, and September.* Of Spain the same may be said.† In Sardinia they appear in June,‡—in Minorca, from the same month to November,§—in Egypt, from May to September,‖—in Senegal, on the coast of Africa, from the beginning of July till November,¶—at Gambia, nearer to the equator, they appear earlier and continue longer.** Other places in the eastern hemisphere might be cited, as Bombay, Bengal, Batavia, &c.

It appears, then, that these diseases are regulated in their appearance and duration by the length of the season of heat and moisture, and putrefaction. Their intensity also obeys the same circumstances.

On the American continent.—Low bilious and intermitting fevers are scarcely known at Quebec, according to Lind.†† Fevers in New-England appear in summer and autumn, are mild, and resemble those of Great-Britain.‡‡ They assume a more violent character as we approach Maryland and Virginia; and in South Carolina, as in Italy and Sardinia, the inhabitants fly in the warm season to the cities for health. Farther south these diseases, occupying the same seasons, become still more terrible; and towards the shores of Colombia, and in the West Indies, they bear a close resemblance to the frightful endemics of the old world, in the regions near the equator: they appear earlier, their season is longer, and they are more intense, as we descend from the northern latitudes to the line. From 32 to 100° and upwards, fevers and putrefaction increase together.

II. *The effect of extreme dryness.*

An excessively dry air then arrests putrefaction, and also summer diseases. In Sicily, the beds of the dry water-courses in the hills cease to generate miasmata, and also fevers, in seasons when there is little or no rain, from the suspension of this process. In those parts of the country, however, where the ground is marshy, and a sufficient quantity of water remains, or is deposited every night in the dews, to sustain putrefaction, diseases appear every season.§§ It

* Lind, p. 21.
† Westminster Review, No. V. p. 143.
‡ Lind, p. 21. § Ibid. p. 23.
‖ Ibid. p. 28.
¶ Ibid. ** Ibid.
†† Lind, p. 24. ‡‡ Ibid.
§§ Irvine and Boyle, quoted by Johnson on Hot Climates, p. 302-3-4.

is, however, as is observed by Sir John Pringle, only in the deserts of Africa that a proper example of a dry air can be found. In Senegal (Africa), in the dry season, the country is healthy; the same thing may be said of many parts of the East Indies. Putrefaction is suspended by the excessive dryness of the air. The hot winds, which come from the deserts of Nubia and Ethiopia, destroy the plague, by their excessive dryness.* The people who live near to the great desert of Africa, are remarkably free from epidemics. The deserts near Egypt do not cause them, because moisture, and animal and vegetable remains, the requisites of putrefaction, are wanting in those solitudes.† Dryness, therefore, suspends both putrefaction and fevers. To this, however, there are some apparent exceptions—Let us examine them. Thus, a country may appear to be arid and parched, and yet, from the heaviness of the dews at night, acting on the remains of decayed vegetables, the miasmata may be generated in great quantities, and much disease be the result. This accounts for fevers produced in the arid tracts near Lisbon, mentioned by Dr. Ferguson, and also the epidemic of 1822 in Pennsylvania, remarkable for its dryness.‡ The dews, always heavy in hot and dry summers, supplied the place of rain, the putrefaction was general, and the diseases extensive.

The water by which the miasmata are produced, may also be supplied from below the surface, though it appear parched. On many of the extensive watercourses, which run between the ridges of the hills in Sicily, the streams often disappear below the gravel, and pass to the ocean, near which water is found about a foot below ground. These hidden streams produce miasmata, which are dangerous throughout the year. The same thing is observed in Brabant, by Sir John Pringle. There the soil is light, and penetrated by water every where below, so that the air is filled with vapour, though no water is visible. The people are subject to agues, more or less, in proportion to the distance of the water from the surface, so that the healthfulness of different villages can be determined by looking into§ the wells, and ascertaining the depth of the water.

* Lind, p. 103–4.
† Med. Record. Vol. VII. p. 450. Cooke's Essay.
‡ Med. Record. Vol. VIII. p. 381.
§ Pringle, p. 2. Philada. Edit. 1810.

III. *The effect of excess of moisture.*

At Cayenne, Dazille says that, when the marshes are completely inundated, the people are more healthy than at any other season.* The marshes of Delaware are not noxious in seasons when they are completely overflowed. A bilious fever was checked in Breda† by inundating a marsh from whence the miasmata came that produced it. It thus appears that these causes, as frost, extreme dryness, or covering completely with water the putrefying materials, suspend putrefaction and the endemics of summer, and that heat and moisture, acting on the remains of living bodies in proper proportions, are the causes of this process, and of the generation of these diseases; and that this result is supported by the examination of facts taken from all the climates from the high latitudes to the equator.

Wherever, then, putrefaction appears, fever also exists as its effect: the following experiment puts the question beyond all doubt. It has been proved by Gaspard and Magendie, that putrid substances injected into the blood-vessels produce fevers of the most malignant character.‡ Now, as these substances are taken up by the atmosphere, as is evident from the horrible stenches emitted by putrefying bodies; and as they are introduced into the system through the lungs, the structure of which is so permeable that a single inhalation of certain odours introduces them into the blood,§ in quantities sufficient to be discovered in the secretions, the route by which exhalations gain admission into the system is evident, and there can be no doubt that putrefaction is the most general cause of these diseases.

When we inquire into the effects of these causes more particularly, it appears that moisture alone produces intermittents in cold countries. These diseases appear in northern latitudes, in the spring before putrefaction has commenced on the sea coast, and are the product of open and wet winters. The observations of Rush in Philadelphia, and Pringle in Holland, lead to this conclusion; but the following fact puts it beyond all doubt. A case of rabies was treated by B. Gaspard, and water was injected into the veins in the quantity of four oz. at a time; vertigo,

* Rush, IV. 218.
† Ibid.
‡ Med. Record. 1823. 101. Ibid. p. 672-75.
§ Magend. Phys. Phil. 1824, p. 356.

great lowness, nausea and severe rigors were the consequence: his pulse became small and frequent, and his body pale and cold. These symptoms continued for half an hour, and a hot sweating state followed, as in the paroxysm of an intermittent.* The production of agues then from moisture alone, is indubitable; and this fact explains their supposed origin from a wet argillaceous† soil.

Putrefaction, however, is the most general cause of these diseases, and all the facts collected by the industry of medical men are best accounted for on this principle. Let us examine them.

I. As chemistry demonstrates that these emanations are not gases, they can only be disseminated through the air, by being borne up by the vapour it contains. Accordingly we find that the habitudes of these noxious agents entirely correspond with this idea. Their quantity and power are greater in summer and autumn, the seasons in which heat and moisture are greatest; also during the prevalence of south winds blowing over the ocean; also they are most noxious about night, when the dews begin to fall. Lancisi observed their danger in the evening. Johnson states, that, in Bengal, the stench emitted from the marshes at sunset was greater than during the day; and the reason was, that the vapours descending from the upper regions of the air, cooled by the absence of the sun, were met by those ascending from the surface of the marshes, which still retained some heat: accordingly, four out of five, who took the contagion, were infected at sunset.‡ A similar observation is made of the sink of the Salpetriere in Paris.§ The plague at Marseilles,—in Gibraltar in 1810 and 1813,—and at Noya in 1816, raged with more violence during the prevalence of the wind from the south, carrying with it the vapours of the ocean, and the heat accumulated in the burning regions near the equator.‖ The celebrated Sirocco, blowing from the south-east, is dangerous, because in Sicily it possesses the same qualities.¶ In Philadelphia the wind from the same quarter, and for the same reason, raises a stench from the gutters and privies. Night expeditions in hot countries, up rivers, or in marshy situations, are often fatal, from

* Lond. Med. Repos. p. 80. Vol. XXI.
† Chapman's Journal, p. 366. Aug. 1824.
‡ Johnson, p. 61.
§ Alibert, p. 173.
‖ Philad. Journal, Chap. on Epid. p. 359, Vol. VIII.
¶ Johnson, p. 304.

the effect of breathing the air loaded with these poisonous exhalations. The danger of sleeping near the marshes of Rome was observed by Lancisi.* Cutting wood, in low and wet situations, is also described as extremely noxious, for a similar reason; the swamps in hot countries emit an odour like that of carrion, or of a newly cleaned ditch: turning up the surface of the earth, as in digging a grave, is almost certain death to Europeans in tropical countries;† and its effects are to be accounted for only upon the supposition of a putrid miasm dissolved by heat in the vapours of the air: also lying on the ground at night, cutting ditches, ploughing, hoeing the earth for the first time, particularly when the labourers pass the night in the field, are dangerous in hot and wet seasons,‡ as was observed in the state of Ohio, in 1822.

II. The effect of winds and exposure, in modifying the action of miasmata, entirely corresponds with this explanation. They are borne for many miles: thus Lancisi mentions, that the winds blowing over low grounds near Rome caused the fever in twenty-nine out of thirty persons on a party of pleasure.§ Senac mentions a village, in which the prevalence of particular winds, blowing over marshes, produced obstinate fevers in those who had not them before, and relapses in those who had.‖ Lind states that the east wind, blowing over marshes, was the cause of fevers in Great Britain in 1765–6; it produced a chilliness, like that from going into a chamber newly wet.¶ Accordingly, the distance at which these poisons produce their effects has been found to vary from a few feet to eight or ten miles.

III. Exposure to winds which disperse the exhalations, prevents their bad effects. Tozetti mentions a number of reapers, who were taken sick in a valley, of a fever produced by marsh miasmata, whilst the people living on the heights were exempt.** Zimmerman states, that fevers are produced along the borders of those lakes in Switzerland in low situations. When the wind has free access these diseases are rare. The inhabitants in the Tyrol escape fevers, by retiring to the mountains when the Adige is overflowed.†† The exhalations also from the river Bievre, have no deleterious effect in those places where the wind has free access to disperse them.‡‡ In the same manner the miasmata from

* Lind, p. 109. † Ibid. p. 111, Hildreth's paper.
‡ Alibert, p. 183. Phil. Journal, Nov. 1824.
§ Alibert. ‖ Ibid. p. 175. ¶ Lind, p. 14. ** Alibert.
†† Ibid. p. 176. ‡‡ Ibid.

hemp and flax putrefying in stagnant water, produce malignant intermittents: in running water, which carries off the putrefying particles, this effect does not take place.*

IV. On the same principles, a calm in the air increases them. During the plague at Vienna, the winds were imprisoned in a dead calm for three months.† Its effects at sea afford a more decided conclusion:—a calm produces sickness, which is abated or removed by the rising of the winds.‡ In this state of the air, the putrefactive exhalations are dissolved slowly in the air, envelope the body, and gain admittance through the lungs by the breath, and the stomach by the saliva, &c.

V. The facts, that these diseases are also cured or prevented by abating the moisture, by removal from its sources, by ventilation, by being sheltered in houses, cities, by the drying effects of heat, of smoke, &c. are only explicable on the idea of a poison borne up in the air. Dry apartments in the upper stories of houses, prevent sickness in Holland.‖ In the epidemic of 1823, a sensible lady near Philadelphia kept her family free from agues, by having fires in all the rooms in her house. These diseases appear in the suburbs of Philadelphia, in common years, but do not extend into the sheltered and thickly built parts of the city. In the epidemic year above alluded to, the city was healthy, whilst the suburbs and surrounding country were filled with sickness, showing the effect of buildings in preventing the influence of this poison. The lower apartments of a ship, and a house well closed at night from the miasmata, prevent their bad effects. Keeping fires in the doors and inlets of the houses, are thought, by Lind, to render the air less noxious. Bruce mentions that persons living in smoky houses escaped bilious fevers, and Clark also the same fact, with regard to two cooks,§ who alone of the crew of a galley did not take a prevailing fever. A sloop of war, in which the smoke from the cook-room spread itself over the ship, had but few sick in 1765, on the coast of Guinea, when great sickness and mortality took place in a neighbouring vesssel. In warm seasons, also, even in cold climates, moisture alone will not produce these diseases. Thus in the autumn of 1765, an excessively hot year, at Portsmouth, in England, during the prevalence of a fever

* Forest. quoted by Alibert.
† Chapm. Essay on Epid. p. 360. in Journal, 1824.
‡ Lind. ‖ Pringle, p. 8. Rush's Edition, Philada.
§ See Rush, quoting Bruce and Clarke, Vol. IV. p. 215–16.

in the town, those who lay in the ships at Spithead were entirely free from it.* The same is true of tropical climates; moisture there, without the assistance of animal or vegetable putrefaction, alone does not produce diseases, and, it is probable, because perspiration and transpiration by the lungs are kept up, and absorption by those organs does not take place. At an English station near Borneo, in 1773, Lind observed, that from October to April, when the wind comes from the sea, the settlement is perfectly healthy; from April to October, when it blows from the marshes, it produces diseases of a most malignant character.†

During the prevalence of an epidemic at Cadiz, the same author states, those who visited the shore took the disease, and none were sick who remained in the vessel; and those who were ill soon recovered on returning to it. The same thing happened at Pensacola. The exposure of vast surfaces of water does not produce these diseases in warm climates: thus it is observed, that the shores of lakes, rivers, &c., when laid bare, produce disease extensively, by the putrefaction of vegetable and animal remains;—as long as they are covered they have no bad effect.

VI. The effects of clearing and draining marshes also refer it to putrefaction. In the neck, below Philadelphia, since it has been drained, its agues have disappeared. Rome became more healthy by draining her marshes.‡ Under the Goths they were overflown by cutting the aqueducts, and the city became excessively sickly. In the East Indies, islands cleared of woods and marshes are more healthy than those in their natural state.§ The evaporation of the water from the surface of the ground, in Egypt and Syria, renders these countries an arid desert, and puts a stop to the summer endemics.‖

VII. The signs of an unhealthy climate accord with the idea that putrefaction is the cause. Fogs, heavy dews, the rusting of metals, the spoiling of provisions, the increase of insects, indicate the abundance of moisture, and some of them heat, the requisites of this process.

Putrefaction may be either vegetable or animal. With regard to the effects of the first, it is unnecessary to add other facts. Animal putrefaction was considered, in France, to have produced in many instances epidemic diseases, from the

* Lind, p. 118. † Med. Record. Vol. VIII. p. 381.
‡ Pringle's Observations on the Diseases of the Army, p. 172.
§ Johnson, p. 124.
‖ Russell, quoted by Cooke, Med. Record. Vol. VII.

practice of burial in cities ;* and after many attempts it was abolished, and considered by men of science as a great benefit to the country. Dr. Rush states that locusts, raw hides, a large bed of oysters, the entrails of fish, privies, salted meat and fish, &c. have produced these diseases.† Dr. Cooke also quotes some facts of this nature.‡ The putrefaction of codfish produced an epidemic, at New-London (Conn.). Alibert mentions that he has seen malignant intermittents rage in hospitals, where human miasmata were its only causes.§ It is also produced from excessive attention to anatomical pursuits.‖ The English factory at Gambroon was rendered unhealthy, from the putrefaction of great quantities of blubber-fish left upon the shore. The environs of Bassora were laid under water, which, with an immense quantity of fish, putrefied, and produced a mortal fever.¶ Lind relates the history of an almshouse, in which the dead bodies were kept in the same chamber with the sick, and the chambers abounded with stench and filth. It was cleansed by his order, and the disease disappeared.

Vegeto-Animal Effluvia.—Egypt suffers from the vegeto-animal effluvia produced by the filthy habits of its people. Their clothes are seldom washed ; the remains of butchers' offals are left in the streets, and when half putrid are thrown into the sea ; where, driven up by the tides, they lie within water mark, and thus disseminate most noxious stenches.**

The bilious fevers of Bengal are attributed by Johnson to the effluvia of animal remains, the result of the putrefaction of dead bodies, ordure, and filth of every kind, which is thrown into the Ganges, and descends from the upper country through its tributary streams—and of the vegetable matter which dies on its banks, and on the surface of the surrounding country.††

The fort of Seringapatam became a fruitful source of disease, from the filth generated by many thousand natives, and many Europeans, who lived within the ramparts : the putrid colluvies lay in the ditches for eight months in the year, till washed away by the inundation of the river.‡‡ Intermittent, remittent bilious, yellow fever, and dysentery, &c. were its results.

* Medical Recorder, Vol. VIII. p. 404, et seq.
† Med. Inq. p. 179, et seq.
‡ Medical Recorder, Vol. VII. p. 453, et seq.
§ Alibert, p. 218. ‖ Ibid. p. 223. ¶ Lind, p. 79.
** Johnson on Tropical Climates, p. 312–13.
†† Ibid. p. 44. ‡‡ Ibid. p. 100.

The same fevers are produced in Minorca, at Port Mahon, by putrefying animal and vegetable substances which are thrown into the harbour, the water of which is low, and so still, from there being no tide, that they do not move from the same place during the day; and also by an extensive lake behind the town, which presents in summer its half dry slimy bottom to the sun.

The air of marshes contains, as far as chemical analysis can discover, no gas to which these effects can be attributed. According to the experiments of Julia, this result is entirely supported; those of De Lisle show that they are putrid particles, suspended by aqueous vapours in the atmosphere.* The oxygen is even in greater quantity in marshes than on the tops of mountains. Gattoni repeatedly examined the stagnant air of the marshes at the mouth of the Valteline, and found it to contain two parts more of oxygen than that of the summit of Mount Legnone, 8640 feet above the level of the sea:† this difference was no doubt owing to the greater gravity of the oxygen than the azote. Pallas found that mosses from high mountains would not grow in the lowlands, till he exposed them in an atmosphere resembling that from which they were taken, and which contained less oxygen than the air of the lowlands, in which he had in vain attempted to make them grow. Dessaussure has also ascertained that the air of mountains contains less oxygen than that of plains. These experiments have been often repeated; and though the inhabitants of plains and marshes become cachectic, those of mountains, breathing an air less oxygenated, are vigorous and blooming with health. As science discovers no gas to which these febrific effects are to be attributed, the vapours dissolved in the air must then be the media by which the putrefying particles render the air noxious: it has therefore been proposed to condense them, and by chemical tests to try to discover the noxious principle. That vapour is the medium by which the poison is disseminated is rendered certain, by the fact, that the dry winds coming from Egypt and Nubia suspend the summer endemics of these countries, and that in proportion to the heat, moisture, and living remains, is the spread of these diseases in all climates. Chemistry has ascertained, Murray tells us, that in summer, compared with winter, the quantity of vapour in the air is as six to one. If this be the case in the climate of Britain, about 55° north,

* Chapman's Journal, p. 364. Vol. VIII.
† See Alibert, p. 213.

what must it be in more southern latitudes,—in Senegal, near the line, where the quantity of rain which falls in four months is as great as that which falls in England for the space of four years.* This moisture, impregnated with these dangerous effluvia, gains admittance to the blood through the lungs; for these organs are so permeable, that even one inspiration of an odorous body enters the blood.† They expose also a surface of this fluid to the action of these effluvia, supposed to be many times greater than that of the human body, and often in a minute. Under these circumstances, as putrid substances are proved to produce malignant fevers when injected into the blood by the veins, there can be no doubt but that, when introduced by the air into the lungs, they become the most general cause. The terrible and sudden effects produced by these agents, accords with this extensive application of these poisons. They also enter the system by the stomach with the saliva, as is rendered probable from the excessively disagreeable taste in the mouth, and vomiting produced by the miasmata, in visits to the marshes in tropical countries.

Other causes also produce these diseases, though more rarely. Plunging in ice-cold water has produced a fever, also extensive wounds from bullets, according to Alibert,‡ with symptoms resembling those of malignant intermittents. Fever is therefore a state of the system produced by many causes: putrefaction, however, is the most general.

Exciting causes.—Any cause, which debilitates the system, may excite the fever after receiving the poison. Fatigue, intemperance, sleeping in wet clothes, cold and bad air; passions of the mind, as anger, sorrow, fear, and grief; long-continued watching; the use of heating medicines; improper or unwholesome food; excessive evacuations; sudden and great exertions; wounds.

Effects of the Miasmata.—Stupidity, slight delirium occurring at intervals, oppression and depression of spirits, drowsiness, headache, impaired memory and reasoning powers, are mentioned by Lind as some of the effects immediately resulting from exposure to miasmata, in persons unaccustomed to it. The passions operate also with more violence on the body than in a purer air. An excess of passion often produces an attack of fever; the sight of a corpse, or a shock-

* Lind, p. 33.
† Magendie's Physiology, Philad. 1824. p. 356.
‡ Alibert, 223, et seq.

ing story, have produced delirium in a person in perfect health, under these circumstances, or a violent vomiting and purging, which has terminated in death in twenty-four hours. (Lind, p. 130.)

Loathing, indigestion, with bilious stools fermenting like yeast, and yellow complexion, are also its results. Any excess of eating or drinking sometimes throws the system into a fatal fever, which ends in forty-eight hours. (Lind, p. 131.) Wounds nearly healed also break up, attended with gangrene in the surrounding parts. If the patient have an ague, and be brought into a bad air, it becomes malignant, remittent, or dysenteric. Recovery is tedious and uncertain, and relapses follow the least irregularity, even from eating a little soup.* When fever takes place, it is either intermitting, remittent, or inflammatory, with discharges of bile—dysentery, cholera, colic, or diarrhœa.

Acclimation.—Habit mitigates the effects of diseases in all climates. Proceeding southward from New-England to Orleans, it is observed that strangers from northern climates are attacked, whilst the natives escape the summer diseases. The negroes, who are more exposed to the air in the south, are more free from those attacks; whilst, in the lower parts of the Carolinas, the white inhabitants cannot sleep a night in summer in the country without sickness; but they are still less susceptible than people from the north—for in southern cities strangers from high latitudes die, whilst natives escape.

The effect of acclimation is evident even in the north of Europe. In the low and wet island of Portsea (England), strangers who are accustomed to the air of a high and dry situation are more violently attacked than the natives.† Even convalescents recover more rapidly in their native air, though it be unhealthy to persons not accustomed to it.‡ This is true of the fens of Lincolnshire in England. At Middleburg, in West Zealand, also, strangers who had lived in a dry pure air recovered more slowly from bilious fevers than the natives. In Italy, it is stated that labourers coming down into the air of the rice grounds and marshy districts, were affected with fevers, even in the favourable seasons.¶ At Sierra Leone, a climate which exhibits the extremes of heat and moisture,§ a residence of some time robs its dis-

* See Lind, p. 131–2. Phil. 1811.
† Lind, p. 15.
‡ Thomas's Practice.
¶ Philad. Journal of the Med. and Phys. Sciences, p. 382. Vol. VIII.
§ Lind, p. 32–3.

eases of their terrors. Among the natives of the Gold coast fever seldom appears,* and when it does it is generally ephemeral in its type.

These facts are important to the army and the navy; as those persons only should be sent on expeditions who have been acclimated by a residence in appropriate latitudes.

From the circumstance of the inhabitants of particular latitudes being thus affected, the temperature at which the remittents of summer take on their more malignant form has been attempted to be decided with precision: this, however, depends so much upon susceptibility to the effects of exhalation, produced by modes of life, natural predisposition, the state of the mind, and the debilitated condition of the body of each individual, that it must vary somewhat every season. Thus, it can be imagined that a cold winter preceding a hot summer, might render the system more susceptible in the same place; as the inhabitants of northern latitudes, such as Copenhagen, are affected with epidemics in hot seasons, resembling the same diseases in the West Indies, though the temperature never rises so high in the former as in the latter. At Philadelphia, some have fixed 79° as the average temperature at which this takes place,† others at 80°.‡ It is probable it varies in different seasons as it does in different latitudes, according as the system has been acclimated by preceding exposure.

Effect of the Varieties of the Season on Summer Diseases.

These diseases generally first appear in the form of intermittents in northern climates; they become remittent as the summer advances, and in the autumn agues again appear. An excessively dry and hot season renders them typhoid; this happened in Pennsylvania and Ohio, in the summer of the year 1822. The lancet could not be used, and the diseases were malignant and dangerous. Winds from a southern quarter heighten this diathesis. In the Netherlands, excessive and uninterrupted heats, combined with great moisture produced great mortality,§ according to Sir John Pringle. The cold damp and foggy nights of autumn, with warm and stifling days, check the perspiration and produce remittents

* Johnson, p. 351.

† See Chapman on Epidemics, p. 119. Vol. VIII.

‡ Caldwell on Yellow Fever, in his edition of Alibert, p. 17. Dr. Cooke proves that the mortality in Philadelphia was proportioned to the heat.

§ See Pringle—Rush's Edition, p. 5.

and dysenteries. If the air be simply moist and cool the fevers are tertian, and are easily cured; but if the exhalations arise from marshes and putrefying animal substances in very hot weather, these diseases become more intense and dangerous, appearing in the form of double tertians or quotidians, and change into continued and remittent fevers in the hottest weather. They sometimes begin with slight remissions, intermit for some time, and then change into continued fevers of a low type, varying greatly with the season, but always disappearing with the fall of the leaf and appearance of frost.* During the hot weather, relapses are most frequent from the greater power of the producing causes, which declines as the autumn advances. In the spring, however, they again recur; and obstructions of the liver, and spleen, dropsy and tympanitis follow.† The above remarks apply more particularly to moist situations; but even in the driest seasons, after long continued heats, warm and stifling days, exposure to the dews and colds of the night produce these diseases: and they take on the form either of cholera, fever, or dysentery. The latter disease has been generally attributed to eating green fruit; it occurs frequently before the fruit appears, and is most generally caused by exhalations, in armies, cities &c., arising from vegetable and animal putrefaction,‡ and is often like other forms of summer disease kept up, aggravated, and changed into typhus by violent heats, and neglect to remove the excretions.§

The cold of autumn renders the remittent fevers inflammatory, rheumatic or pneumonic. The peripneumonies and rheumatisms of the spring, change into agues as the heat increases, which become continued or remittent in the progress of summer; dysenteries appear from exposure to cold and wet; on this account the dews and cool nights of autumn produce this disease after warm days.

If the summer should be unusually cold, the fevers are inflammatory, and require depletion; if unusually hot, discharges of bile with a typhous or typhoid diathesis are liable to occur, with inflammation of the stomach, duodenum, &c.

It was observed by Pringle that a long continued season of heat produced no bad effect in the latitude of Britain, and that it was only from exposure to the dews of the night, to damp or wet situations, that disease appeared: bilious fevers were then the result. Inflammatory diseases, however, sometimes proceeded from sleeping in the sun, in the hot sea-

* Pringle, Part. 1, Chap. 1. † Ibid.
‡ Pringle, p. 19. § Ibid. p. 20.

son; and in autumn, a remitting fever or dysentery proceeds sometimes from the same cause. The dews in hot and dry seasons are always uncommonly heavy, and the difference of the temperature of the day and night renders dysenteries the common effect of the alternation of temperature.

The remittents of the summer, if the autumn be cold and rainy, sink into low typhous fevers. Quotidians often become tertian from the same cause; from tertian they become quartan, and end in dropsy. In wet summers these diseases relapse frequently; when, if the weather be temperate and equable, they cure themselves. These observations, though made in a northern latitude, apply to all climates, for such is the effect of habit on the constitution, that the vicissitudes of the weather from hot to cold in the south, though more slight, are felt with nearly as much intensity as in the north, from the greater sensibility of the constitution. So true is this, that even in the mild climate of South Carolina, in winter, death from exposure to cold sometimes occurs: and at Copenhagen (Denmark), from the excessive heat of the summer of 1652, a highly malignant disease, resembling yellow fever, with inflammation of the stomach, &c. has been known to appear,* from the susceptibility produced by the ordinary low temperature of their climate. The effect of habit on the system is also shown by the extraordinary mild character of the fevers on the coast of Guinea in the natives, being generally ephemeral, or simple intermittents, whilst the most horrible remittents appear among strangers: the intensity of the cause, and the circumstances of the sick, always regulating the type of the disease. Thus, where the habit is full, strong, sanguine, irritable, and muscular, the person young, and lately arrived from the north, the reaction is violent, and, if not arrested by judicious means, death speedily supravenes, or dangerous debility, chronic disease, and destruction of some vital organ.† If the temperament be melancholic and phlegmatic, and the causes violent, the system does not react, and the patient becomes apparently putrid before death.‡ In old residents, remittents often kill, combined, generally, with some visceral disease. Intermittents, however, are more common among them, and are, as in northern latitudes, accompanied with visceral obstructions. These facts show in an interesting manner the power of habit over the system, and also the extreme and horrible effects of this poison on subjects most favourable to its action. As the same violent results take place in some instances in

* See Pringle, p. 169. † Johnson, p. 350. ‡ Ibid.

northern climates, in hot seasons, the propriety of studying by extensive comparison, the various action of heat and moisture, is obvious.

The effect of the Constitution, Age, &c. on Summer Diseases.

In the young and sanguine, the effects of miasmata show themselves more frequently in continued fevers, whilst in the old and more debilitated agues are more common. The hot season in the former, often produces fevers of a typhoid bilious type, whilst in the latter the system is only raised to a mild remittent. In the autumn, dysenteries attack the young and middle aged, from their frequent exposure, and as the season advances, their diseases become inflammatory, or are not so apt to sink into low, irregular typhous fevers, as in those more aged. In the phlegmatic and the old, intermittents often pass from a quotidian to a tertian, then change into a quartan, and finally end in dropsy, typhus, jaundice, or diseases of the liver, and spleen. In hot climates, the effect of the febrile poison is more evident on lax systems, particularly in strangers, who become almost half putrid before death. In the yellow fever in the summers of Pennsylvania, this not unfrequently happens when the disease is violent. The perspiration in the last hours of life is cadaverous, and the flesh nearly falls off the bones in performing the last duties preparatory to interment.

The effect of Modes of Treatment on the Type of Summer Diseases.

A low, weak, and phlegmatic system in the ague, by the use of debilitating remedies, as purgatives, sudorifics, and also of mucilaginous and watery diet, slops, drinking much water, abstinence, is thrown into dropsy, jaundice, obstructions of the viscera, and nervous diseases. A contrary plan braces the system; tonics, exercise, in a dry air and high situation, cure the ague, increase the strength, and establish the constitution. If, however, the patient be of an inflammatory diathesis, a quotidian is changed by tonics into a continued fever, and emetics, bleeding, or some depleting remedy becomes necessary. The same is true of fevers of a continued type; they are changed in their character by slight deviations in diet or medicine.

On the Affinities between the varieties of Intermitting and Remitting, &c. forms of Summer Diseases.

They constitute one family, produced most generally by putrefactive exhalations. The most common form of the autumnal and summer diseases is the tertian, which may be considered as the middle type between the typhus and inflammatory fever,* both of which forms these diseases frequently assume. The quartan is the weakest and the most allied to typhus, the tertian is more inflammatory, and so on, quotidian, remittent, to the highest grade of action of which the system is susceptible. The double tertians and quartans, and other compound types are to be considered as more or less violent, according to the number of paroxysms in a given time. According to the violence of the poison, the paroxysms grow longer, and gradually approach and run into each other, till they become continued. Sometimes the chill appears—at others, there is none at all; in some cases there is perspiration—in others it is not discernible. In some cases, the disease, after the paroxysm has continued for some time, abates, until at or near the hour when another paroxysm shall take place—it is then called remittent.† When the first fit has not terminated till the second begins, the preceding paroxysm seems to run into the one that succeeds—it is then called subintrant. These forms, then, differ only in degree and are in character really the same.‡ All the other varieties of these diseases may be referred from their resemblances to the same natural family, so gradually do their shades disappear in each other.

Senac gives many instances to this effect in epidemics of the same year, and it is so consonant to general observation, that it is useless to describe the particular facts on which this belief is founded. We shall first note the descriptions of disease observed by this great man within his experience. 1. Genuine intermittents. 2. Fevers which are changed into remittents. 3. Fevers which assume at first a continued form, although they originate from the real cause that produces intermittents. 4. Those which from intermittents become continued fevers. 5. Fevers which run on in a continued form for five or six days or more. 6. Those of the same nature, that run on as continued fevers, for fifteen or twenty days. 7. Fevers marked by longer or shorter remissions, more or less conspicuous, and sometimes not even obvious to the senses. 8. Fevers with exacerbations preceded by a cold fit,

* Huxham, p. 26. † Senac, p. 102. ‡ Ibid. p. 103.

and sometimes not. 9. Fevers altogether irregular, both as to exacerbations or remissions.* These are but a few of the irregularities which have been observed. They are sufficient to convince the most sceptical that these diseases are merely varieties of each other. Their increase in violence from the spring months, through the summer, to the autumn, from the mildest ague to the tertian, to the mild remittent, and finally the yellow fever, support this idea. Their gradual and varying forms, appearing with intensity and duration, from the north of Europe to the line, in proportion to the latitude, also favors it. In whatever view the subject is regarded, the varieties of these diseases run into each other, so that it is impossible to establish any thing like distinct species among them.

They assume the forms of the plague, yellow fever, and the bilious remitting and intermitting fevers, and have no invariable distinctive character, 1st. because they personate in their course every disease. Thus the plague masks itself under the form of every symptom and disease, and is therefore called proteiform. The yellow fever has the same character, and the intermitting and remitting bilious fever in epidemic years, is proverbially varied in the same manner. The black vomit, the red eye, the signs of the yellow fever, are found in the plague,† and in common bilious fevers. Glandular swellings, also, the supposed distinctive character of the plague, have been known in the yellow fever, and in the remitting bilious fever.‡

The plague, yellow fever, and bilious remitting and intermitting fevers, are mere varieties of the same disease, because they are produced by the same poison—vegetable and animal putrefaction. This is proved from the prevalence of these diseases in the season of putrefaction only. Thus the plague prevails in Constantinople from July to December, and in Europe generally in the same months.§ Intermitting and remitting bilious fevers, and in hot seasons the yellow fever, have been shown to appear in all the latitudes from the north of Europe to the line, in summer and autumn, the seasons of putrefaction; so that all the causes which abate putrefaction, also abate these fevers. This is also proved of the plague; for if the moisture of the air be dissipated by the prevalence of hot winds, the plague is suspended and the season of its predominance is curtailed: thus in Asia Minor, generally, it stops in July, at Smyrna in June, by the drying effect of the hot winds coming from the south-

* Senac, p. 112. † Johnson, p. 317–8–9.

‡ See Hildreth on the epidemic fever of Ohio, p. 108. Chapman's Journal for Nov. 1824. § Westminster Review, No. 5, p. 158.

ern deserts; whereas in Europe, where these winds have little power, it prevails throughout the whole summer and autumn, the seasons of putrefaction. This apparent exception, therefore, proves the general rule—that this disease has the same origin with the common remitting fever.

The disappearance of the plague from London and the cities of the north of Europe for many years, is only to be accounted for on its miasmatic origin. The manner of living supports that idea. In London, it is stated that, a little before the reign of Elizabeth, the houses were generally made of rods, plastered with mud, had earthen floors, were strewed with rushes, on which were thrown grease, beer, animal and vegetable substances, the remains of their meals; they became also the receptacles of the ordure of dogs and cats, &c. so that it is not remarkable that the plague should have been the result.* Even the floors of the palaces were strewed with rushes. This mode of life, therefore, was general, though of course in those who were affluent there was more cleanliness. The entire exemption of the northern parts of Europe at present can only be accounted for on the removal of these sources of miasmata, by improved habits of life, cleanliness, industry, &c. The plague then is a variety of remitting fever, because it has the same origin—viz. putrefaction.

Cold arrests the plague, the yellow and bilious fevers, because it puts a stop to their cause—putrefaction. In London, in 1666, the general prevalence of the great plague was in July, August, and September,† and it ceased with the disappearance of putrefaction, at the setting in of the cold season. In Europe, generally, when this disease appears, it is always in these months, like the yellow, bilious, intermitting, and remitting fevers, and like them, disappears with the appearance of frost.

These remarks apply also to dysentery, to cholera, and bilious diarrhœa, for these diseases occur in the same situations, in the same seasons, and have the same range over the surface of the earth, as remitting and intermitting fevers. They appear in miasmatic exposures, and are mitigated by all those circumstances which diminish the quantity of putrefactive exhalation, as high winds, &c. in the same manner as bilious fevers are. Cholera and dysentery also change into the intermitting and remitting type, dropping the peculiar symptoms which distinguish them. These symtoms appear in bilious fevers, from the slightest nausea, tenesmus, or spasm, up to the most violent, deadly, and frequent efforts

* Hume, III. 352. † Westminster Review, V. 359.

to reject the contents of the alimentary canal, and therefore cannot be considered as of different species.

Cleghorn acknowledges the near affinity of these diseases. The cholera morbus has regular periods, like a tertian, as tertians also are frequently attended with cholera. Tertians change into dysenteries, and the contrary,—choleras also change into remittents.* If one of these diseases be suppressed, the other sometimes appears. Dysenteries also assume the form of tertians, and tertians are often accompanied by frequent gripings and evacuations.† The various degrees of cholera are mere shades of difference between griping pains. Dr. R. Jackson also describes the tertians of South Carolina as changing into dysentery,‡ and the contrary. Cleghorn enumerates the black vomit as one of the symptoms of malignant ague: it also appears in the cholera of India.

Regarding these diseases, then, as merely varieties of each other, with either general or local determinations, it is proposed, in the following pages, to consider them in the following order:

1. Intermitting and remitting bilious fevers.
2. Dysentery.
3. Cholera.
4. Colic.
5. Bilious diarrhœa.

Character and Symptoms of Summer Fevers.

Of the Intermittent Variety.—Heaviness, lassitude, disposition to sleep, headache, anxiety, yawning and stretching, with paleness singly or combined, announce an uneasy and unnatural state of the system. The lips, nails and face become pale, livid, marbled or blue; sensations resembling small streams of water rushing irregularly in every direction, vanishing and then suddenly returning with more violence, gradually increase, till they spread through every part of the body, and the patient shudders with repeated succussions of shivering rigors and horripilations, feeling as if cold water were dashed over his limbs. The anxiety is excessive and inexpressible; so great indeed, that patients sometimes think of committing suicide to get rid of it.§ The heart beats violently; the patient trembles, and even faints; the teeth chatter and are said to be sometimes broken.‖ The limbs take on the same irregular motions, which become convulsive, and are only restrained by pressing them with force against each other.¶

* Cleghorn, p. 134. English Edition.
† Cleghorn, p. 177, quoting Hippocrates de Morb. Popul. l. VII.
‡ R. Jackson, 1791, p. 330. § Cleghorn, p. 226. ‖ Senac. ¶ Ibid.

The symptoms of the chill, the stage just described, vary in different individuals, being slight, almost imperceptible, or very severe, affecting only a part, sometimes the half and most generally the whole body; more severe in the old and the weak than in the strong; and lasting from a few minutes to several hours. The duration of the chill regulates that of the succeeding stage: if it be short, the fever is long, and the contrary; stability, however, is not the characteristic of these fevers.

In the chilly stage, the blood retires towards the internal parts; the heat within is excessive; the thirst and dryness of the fauces and gullet are annoying, and the stomach becomes sick with bile. The thirst increases, nausea and at length vomiting comes on. The matter discharged is fluid, bitter, and sometimes fœtid; the vomiting is violent in proportion as the fit is severe, and is generally less harassing in vernal than autumnal agues; as they grow milder it disappears.

In the chill, the arteries are contracted, and the blood in consequence distends the veins: the lungs feel strictured and oppressed, and in patients who die in the chill they are found loaded with blood. The vomiting of bile, which attends this state, is proportional to the severity and continuance of the paroxysm, and has led to the idea, that the disease originates in this secretion. The discharge of bile, however, is only an effect and not a cause of the fever. When the case is slight, there is no vomiting of this fluid whatever, and there are agues, in which it never appears.

The limbs, knees, back, &c. are also pained, as also sometimes the intestines. Pricking sensations likewise are felt throughout the skin.* The whole system is less sensible both to wounds, and to the action of purgatives, during this state. The urine is thin and watery; and the perspiration is obstructed. This is the first or cold stage.†

The thirst, heat of the skin, pains in the joints, restlessness, vomiting of bile, continue; the whole surface becomes flushed, the urine red, the temperature of the skin even rises higher than it does in ordinary fevers, and continues till the fever ceases, and the sweat takes place. This secretion differs at different times, sometimes flows immediately after the commencement of the hot fit, in others more slowly;‡ sometimes it is copious, returning in a case related by Senac, six times a day.§ The increase of the perspiration renders the

* Senac, p. 36. Phil. Ed. 1805.
† Ibid. p. 36–7. ‡ Senac, p. 44. § Ibid.

urine of a deeper colour. After the force of the fit has abated, a sediment of a two fold character is deposited; one of a brick-dust colour, and the other, which appears only sometimes, is smooth and white, and is generally a favourable sign.

The disease then abates, and the intermission takes place, not, however, without some latent signs of fever continuing in most cases, till the next paroxysm, showing their affinity to remittent fevers; from which however they differ in two respects; first, that in remittents the fever only abates, and allows therefore less time for the use of remedies to counteract it; and secondly, that the fever in remittents is more intense and the secretions less free.* The chill is often absent in remittents or exists only in a slight degree, and the fever continues longer. The discharge of bile is more constant throughout the fever in remittents. They, however, approximate and vanish into the various shades of intermittents, by insensible degrees.

Manner in which they Change their Symptoms.

Though these diseases frequently change their type, they often do it with some regularity.

The tertian becomes quartan, the quartan also a tertian or quotidian. Of these, however, the tertian is said to be the most irregular, personating, according to Senac, even hectic in its changes. Notwithstanding this changeable character, these fevers, on recurring after a long suspension, appear in the form which they before had assumed. Thus a tertian on a second attack, assumes the tertian form, and a quartan also its own proper character. When they reduplicate also, the tertian becomes a double tertian, a quartan also a double quartan, retaining its primitive type.† When they anticipate also they do so by equal periods: and in a double, triple tertian, or quartan, when one of the component diseases terminates, the other‡ continues. The longer the practitioner is acquainted with these diseases, does he think they obey most strictly regular laws. Cleghorn observed that they were the same in the Spaniard and the Englishman, and in those who were exposed on the bare ground and those who lived in the most affluent manner. Intemperance, exposure, bad management, had little effect on their course, so little are they affected by even powerful causes.§ Sometimes the disease is sus-

* Senac, p. 291. † Senac, p. 57. ‡ Ibid. § Cleghorn, p. 162.

pended, and its poison still lurks in the system, producing various irregular affections, heaviness, weakness, swelling of the belly, indigestion, loss of appetite,* which disappear on the renewal of the fit.

Anger, terror, or some emotion of mind sometimes suddenly destroys these diseases, and frequently they are roused into violent action by the unexpected sight of an unusual object, as of a mouse; they disappear spontaneously without any evident cause, sometimes leaving behind them some obscure vestige, as a pain or heaviness in some part of the body recurring at regular intervals.† The disease thus assumes a masked form, and retains its dangerous character without any evident external symptom.

Character and other Properties of Irregular Intermittents.

When an intermittent becomes irregular or malignant, the brain and nervous system may be particularly its seat; and it may appear in some of the following forms, with pain in the head, delirium, syncope, convulsions, tetanus, epilepsy, apoplexy, hydrophobia—each of these personated diseases giving its name to the variety, the cephalalgic, the delirious, the syncopal, the convulsive, &c.

The lungs are sometimes affected, giving rise to the dyspnœic, peripneumonic, and the catarrhal types. Where the digestive and secretory organs are its seat, it may personate cholera, icterus, cardialgia, nephritis, or hepatitis. When the skin is affected, it is called the exanthematic or diaphoretic, according to the affection. These attacks may commence with a chill or without; the simulated disease supplying its place or that of the fever. These intermittents differ from the ordinary form of these diseases, in attacking violently or rapidly, with unusual symptoms, terminating suddenly in death. The term irregular or ataxic and malignant, therefore, applies to them with the greatest propriety. Their irregularity disappoints all calculation; a fresh attack comes on when a decline is expected, and it declines when it ought to increase,‡ and lastly, they suddenly appear, and as suddenly disappear. They prevail epidemically or singly—sometimes the paroxysms are distinct—often they incline towards the continued form. In one constitution they assume a particular character; thus, they are attended in the choleric, with headache, or apoplexy, &c.—in others they are quite different. It is therefore ne-

* Senac, p. 56. † Ibid. p. 59. ‡ Alibert, p. 115.

cessary, as they personate almost all other diseases, to be very discriminating in forming an opinion of them: thus, to distinguish an apoplectic intermittent from a real attack of apoplexy, we should observe whether the symptoms follow the regular advance and progress of the course of the fever, appearing and disappearing with it*. If a chill precedes the intermittent, if it be epidemic, and there be a lateritious sediment in the urine, a pretty certain, though not infallible sign of these fevers,† and if this sediment occur during the remission, there can be no difficulty; but as the chill is often slight and apt to be overlooked, the power of discrimination is not often so easy—the former habits of the patient will then afford some clue. If any preceding irritation or pre-disposition to disease be awakened by the paroxysm, the case, though alarming during the attack, will cease to be so as soon as the fit subsides, and if proper means be used the patient will entirely recover.‡ A part in these diseases may appear to be violently inflamed or otherwise deranged; thus, during the attack, the patient may have symptoms of the most furious phrenitis, pleurisy, hysterical affections, hemoptysis, a sudden sensation as if struck by a blow, and all the danger disappear with the fit, rendering blood-letting unnecessary, and even dangerous. In the same manner, if cholera and diarrhœa be the forms under which the disease is masked, the exhibition of vomits and purgatives is debilitating, and to be avoided; they cease with the fit, and the patient is then to be treated by the appropriate remedies for these diseases. In different years, the prevailing character of the disease varies, and when the epidemic causes are violent, they exhibit every imaginable variety in the same year. They sometimes intermit completely—in other cases they have only remissions. They are tertian, quartan, quotidian, and are as irregular in this respect as in almost every other. They approximate, in their nature, to malignant remittents, with this difference only, that they do not debilitate the system so much as remittents, as their paroxysms do not continue so long. They are more under the power of the bark, whilst remittents of a malignant character yield but little to any mode of treatment. Like the simpler forms of agues, they are often followed by relapses, and like them they are not contagious. The proofs of this fact in their different varieties, the yellow fever, the plague, and common bilious fevers, follow.

* Alibert, p. 98.

† The lateritious sediment sometimes occurs in pleurisies and other inflammatory fevers.

‡ Alibert, p. 98.

As to the yellow fever, the proofs of its non-contagious nature are numerous: it is taken only in particular situations, as near the wharves of a populous city; and without visiting the district infected it cannot be taken. It is a property of this district to communicate the disease, not of the people in it, because, when they are taken out of the district, those who approach them do not take it; nurses, who are constantly near the sick, day and night, breathing an air loaded with their excretions, do not take it; mothers, ill of the disease, sleeping with their children, do not communicate it; children at the breast are not infected by the milk of their sick mothers, though they suck them till death; the serum, saliva, and black vomit of patients with yellow fever, introduced into the blood by inoculation, do not communicate it;* the vapour of the black vomit, produced by throwing it on coals and inhaled, does not communicate it; nor does swallowing the same substance. Here then the system of a healthy person, exposed in every possible manner, cannot take it from the bodies of the sick, for their breath, their excretions and secretions introduced into the very blood of the well, do not communicate it. But if a visit of a few minutes is paid to the district of a city where it prevails, though the visit be short, the person often takes the disease and dies soon after. The power, then, of communicating this disease, is the property of a place, and not of the sick body. It is therefore not contagious, as by contagion is meant the communication of disease from person to person.

The plague is not contagious, we are told,† because persons visit the coffee houses and other places of public resort with the plague upon them, without communicating the disease; servants in hospitals, who dressed the sores of the sick, and handled them, did not communicate the disease; only one individual out of twenty persons in the most close and constant intercourse with the sick took the plague in 1815 in the observation of Dr. M'Clean. Persons living in the same room were not affected:‡ the clothes of the deceased of the plague are worn with impunity, and the dealers in these clothes are not infected: the plague ceases for two or three years; whereas, if it were contagious, the bedding and clothing of the sick would of course keep it constantly prevalent, and it would appear every year.§

The bilious remitting and intermitting fevers, with their

* See Ffirth's Inaugural Dissertation.
† Westminster Review, No. 5. p. 161. ‡ Ibid. p. 160—1. § Ibid.

intestinal varieties in this country, only prevail, and are communicated to those, who breathe the miasmatic atmosphere. Contact and intercourse with the sick neither increase nor diminish it. In Zealand, it is observed that mothers ill of the disease, do not communicate it to their children, though they suckle them during the course of their illness. The same thing is observed in the whole range of these diseases, from the northern latitudes to the line; their source is in the miasmata arising from vegetable and animal putrefaction, and not from the body: and this is proven from their appearing only in the miasmatic seasons, summer and autumn, and from their prevailing most extensively just before they cease altogether—whereas, if they were contagious in proportion as the number of cases increased, they should go on to multiply from the increase of the matter of contagion.

To prevent these diseases then, the removal of all the sources of putrefaction is necessary. Quarantine laws are useless, excepting so far as they prevent the introduction of articles of merchandize in a decayed state, as hides, coffee, &c. which may, by generating exhalations, produce these diseases: they should have no action on persons.

Prognosis in common Intermittents.—If no acute pain in the viscera attends these diseases, if they decline in warm perspirations, with free intervals, without much decrease of strength, or are attended with a good appetite; if they have scabs and pustules about the lips, a natural appearance of the urine, the case is favourable, as in the opinion of Cleghorn these are signs of a rapid recovery. Whereas delirium, anxiety, pain in the loins, or about the upper orifice of the stomach, feebleness, vertigo occurring in the intervals; hard swelled and painful epigastrium, the urine thin, clear, and high coloured, or covered with an ash-coloured membrane like a cobweb, profuse vomiting, purging, bleeding at the nose, colliquative sweats—are, in the opinion of the same author, dangerous. With these symptoms they often change into dysenteries, continued fevers; and the patient dies, or drags out an uncomfortable life in irregular paroxysms, night-sweats, chronic dysentery.* Fevers that are most violent on the even days are most to be dreaded. The disposition to change their type from an intermittent to a remittent form is always more or less unfavourable. Thus if the cold fit be extremely slight, or be attended on its accession with a sensation of heat; if the paroxysms go on to increase in strength

* Cleghorn, p. 173—4.

and duration, the intervals between them becoming shorter; if in the intervals there be a disorder in the pulse, with dry skin, parched tongue, headach, and great signs of irritation in the system, the evidences are strong that the disease is likely to assume a continued form.* The red colour and smallness in quantity of the urine, delirium during the remission, sharp voice, hiccough, a small pulse, or the preternatural state of any particular organ, when they occur, should induce us to regard the disease as having that tendency. Symptoms, even of a slight character, as heartburn, pain in the head, lateritious sediment in the urine, during the intermission, if these fevers prevail generally, may induce the physician to suspect this change to be probable, and he must direct his measures accordingly.†

Prognosis in Malignant Intermittents.

With regard to the *Prognosis*, the violence of the symptoms will determine it. Aged persons are attacked often with equal violence as the young; their chance of recovery is, however, less, from their weakness. The lethargic and apoplectic states are dangerous, from the organ which is affected.‡ In the cephalalgic state, Alibert states that a frothing at the mouth, a livid colour, and convulsive motions of the face, are fatal signs. Stertorous respiration, and a livid face, hiccough, particularly with aphonia, delirium, and convulsions, are extremely unfavourable. In fine, any appearance betraying great weakness, or symptoms of violent disease in an organ, is dangerous. Thus, in the organs of motion, convulsions, catalepsy,§ are considered as fatal, whereas a bruised feeling, or simply pains, are not at all so. An air of dejection in the countenance, as it exhibits the state of the living powers, bespeaks imminent danger,‖ also, the pupil of the eye turned violently downward and inward; the secretions greatly altered, as urine of a black colour, and of a putrid smell, also greasy and thick, &c. are evil omens. Anticipating paroxysms are not always bad signs, nor those which are postponing good ones. When the fever becomes quartan from tertian, the case is more favourable. A few drops of blood falling from the nose, black vomit, saffron-coloured skin, cadaverous perspiration, great coldness and chilliness continued during the fit, or extreme heat, with speechlessness and stupidity, lying on the back, countenance ghastly, sighs,

* Alibert, p. 143. † Ibid. p. 145, &c. ‡ Ibid. p. 152.
§ Alibert, p. 160. ‖ Ibid.

groans and hiccups, eyes shut, mouth open, belly enormously swelled, involuntary discharge of the fœces, are bad omens, according* to Cleghorn. The stage of the paroxysm which was most violent on the last attack, will be more so on its recurrence, so that it is possible to foretell the probability of death. Patients sometimes expire in the chilly stage, though most commonly in the height of the fever.† The supervention of any violent symptom, as apoplexy, cholera, &c. in an intermittent, is always dangerous.‡ These signs, however, often deceive us. It is mentioned that a flushed face, at the same time dark and overcast, with a stern and despondent look, are marks of malignity in these fevers. A glutinous covering of the tongue is constantly a sign of concealed danger.‖

The Consequences of Intermittents.

As *consequences of intermittents*, diseased liver, obstruction to the passage of the bile through the ducts of the gall bladder, and the livid colour of the skin, bad digestion, dropsy, general or local indurated pancreas, enlarged spleen, are not uncommon. Asthma, occasional hemoptysis, sometimes, though rarely, occur.§ The cold fit, particularly in old persons, often produces death. The high flamed coloured urine in the fever, which, as the fit declines, deposits a sediment of a brick-dust colour, is an almost certain proof that the disease is an intermittent. Senac considers that as long as the urine is red, the disease certainly lurks in the system. A white matter, which seldom occurs, however, settling at the bottom of the vessel, is a favourable sign.¶ The lateritious sediment is too much neglected by physicians. I have heard of death from abscess in the liver, in which the hectic was mistaken for the ague: this sediment is therefore important. Dissection after death exhibits the liver, spleen and pancreas, indurated or affected with abscess, and enlarged; the stomach and intestines filled with black, bilious matter. The spleen is also filled with black blood resembling tar, and gangrenous, the mesenteric glands steratomatous, and much enlarged with contractions of the intestines.** With regard to the dissec-

* Cleghorn, p. 176. † Ibid. p. 178–9.

‡ Torti, quoted by the same, p. 172. ‖ p. 311. 1791. § Senac, p. 127.

¶ Senac, p. 133. In the following pages we have followed principally the precepts of Senac, whose book we have freely used, not only from his extensive experience, but from the judgment displayed every where throughout his invaluable work.

** Senac, p. 154–5–6. also Edinburgh Med. and Phys. Journal, No. 5.

tions after death of acute cases, they throw little light on the subject, as the terrible evils produced by these complaints appear generally to be functional, and not attended with organic lesions. In the yellow fever, it is true, there is inflammation, more particularly of the stomach and duodenum, and sometimes of the intestines, mesentery, &c. with a dark fluid resembling coffee grounds, tar, &c. This fluid and inflammation have been considered as constituting distinctions between yellow and other fevers; but as they do not occur in all cases of that fever, and as the former is also found in hysteria, hydrophobia, and puerperal fever, and the latter in common fever, they¶ cannot be considered so.

Symptoms and Character of the Remittent Variety.

In this variety, the patient feels unwell for a few days, is slightly nauseated, and is without appetite. Alternate heats and chills, lassitude, imperfect vision, ringing in the ears, are sometimes the precursors of this form;* at others vertigo, rigours, griping, nausea, retching, sense of debility, violent headach, pains in the arms, loins, and extremities, with stricture across the breast, and pain under the scrobiculus cordis, which always feels hot to the touch, though the skin is cold and clammy, with great oppression in other cases, commence the attack: sometimes the patient faints, the expression being melancholy, and the face pale; and violent headache, and pain in the epigastrium, are felt upon recovery.† Sometimes the pain first appears in the region of the liver—delirium is the first symptom in others; the pulse is natural, with great pain in the epigastrium. Some do not know their companions; others attempt to kill themselves; the fear of being murdered by those about them, and incoherent language, distinguish other cases.‡ At first, the pulse is generally small, feeble, and quick, about one hundred and twenty or one hundred and thirty in a minute. As the paroxysm advances, it increases in fullness and frequency; the tongue becomes furred, the eyes red and full, and the countenance flushed; delirium succeeds and continues for twelve or fourteen hours, when the remission commences. The pulse falls to 90—the patient complains of great debility, sickness at the stomach, and bitterness of the mouth.‖ The interval is short—another paroxysm succeeds, in which the thirst, delirium, pain at the stomach, and vomiting of bile, are increased to a great degree.§

¶ Ed. Med. & Surg. Jour. 82. 164-5. * Johnson, p. 88. † Ibid.
‡ Ibid. p. 107 et seq. ‖ Johnson, p. 46. § Ibid.

As the fever declines, the pulse also does, but gradually; the tongue is black and crusted, and the pain at the epigastrium is increased.* Its termination is more or less protracted. This is the general outline of the more violent species of this variety. Vomiting of black matter resembling coffee grounds, yellow skin, with red, fiery, or muddy eye, glandular swellings, carbuncles, distinguish its most violent degree. Its symptoms vary from the simple ephemeral fever with slight discharges of bile up to the most violent bilious remittent, of which a description has just been given, to the yellow fever and the plague.

On the Cure of Intermitting and Remitting Fevers.

As a remittent consists merely of a number of febrile paroxysms which succeed each other at shorter intervals than those of intermittents, the plan of treatment, both preparative and curative, which applies to the treatment of each paroxysm of the intermittent, will be found to cure the remittent variety. The use of those substances which are improper, as the bark, during the paroxysms of intermittents, are so also in those of remittents. We shall therefore commence with the treatment of intermittents.

The remedies which have been proposed at different times for the relief of intermittent fevers have been very various. Sometimes a strong impression on the mind of the patient is sufficient to prevent the fit: fear, and even a charm succeed: exercise, and stimulants, are sometimes also beneficial; but their effects are not uniform; they often fail, and when they do suspend the disease† they render it concealed, obstinate, or malignant. These plans therefore hardly deserve the name of remedies, since they depend for their success upon the mildness of the case or some peculiarity of the constitution, which may render them either dangerous or the contrary, according to circumstances beyond our knowledge and controul. The method of cure adopted from the treatise of Senac, and followed almost implicitly in this essay, appears to be the most proper. It consists of such remedies as are general, and common to other varieties of this family of diseases, and those that are specific or peculiarly suited to the cure of intermittents alone. The first or general remedies, as emetics, purgatives, venesection, diluents, and mercurials, reduce the body to its natural state; whilst specifics complete the cure,

* Ibid. † Senac.

for which the others had prepared the system.* The first, it is probable, operate by assisting in the evacuation of the morbid poison derived from the air, whether that be merely water, as is the case most probably in the agues occurring in the months of spring, in wet and rainy weather of cold latitudes, or those which begin to take on a bilious type as the season advances. Specifics strengthen the system, lessen its susceptibility to the action of the poison, and thus complete the cure. This plan derives its superiority from avoiding the results of the contradictory opinions of physicians of different countries, on the treatment of this disease, produced by the distrust of certain remedies and a blind confidence in others, for reasons of no weight, and founded more in a dangerous disposition to controversy than accurate observation, and gives to our measures the advantage of consistent and regular principles.† Before we proceed any further, let us examine the difference of their application in intermitting, remittent, and continued fevers.

Between remittents and intermittents there exists these differences: in remittents the fever only abates and allows less time for the use of remedies to counteract it, and also the fever is more intense and the secretions less free.‡ The course of the disease is also more violent, and of course can be overcome with more difficulty, and more slowly, in remittents; the effect of the bark upon them is equally certain though less powerful; it weakens, though it cannot eradicate them; but let the obstacles to the use of the bark be done away, and that remedy, so sovereign in intermittents, will be equally so in remittent fevers. These obstacles are removed by the use of bloodletting and other evacuating debilitating remedies; they apply very generally, though in a less degree and less frequently, to the cure of intermittents, as well as to the other varieties of these diseases.

On the Cure of these Fevers by Diet.

Intermittents vary much in intensity; in the spring they are generally milder than in the autumn, and frequently cure themselves spontaneously. A moderate and antiphlogistic diet, such as is used in acute fevers, with a few doses of neutral salts in slight cases, are generally sufficient, and a removal into a different air always succeeds. This treatment, when unsuccessful, is a good preparation for the bark, which

* Senac, p. 162. † Ibid. ‡ Ibid. § Ibid. p. 165.

may be given after it, without danger or precaution. Senac states that he cured obstinate fevers, which resisted every other plan, by keeping the patient for three or four days on water alone; warm water, of which he gave six or eight pounds a day, was preferred.

On this subject some interesting observations have been made by Julius Deppe at Lancaster, (Penn.) In the beginning of October, in the year 1821, there were upwards of 60 persons sick with intermittent fever in the hospital, many of whom had indurations of the liver, spleen, &c. Except in those cases, in which the biliary system had not suffered, the ordinary plan of treatment by bark was of no avail. Many of the patients were very ill. The project of Senac, of confining the patients to a diet of water alone, was had in view; Mr. Deppe accordingly recommended copious draughts of it, and total abstinence from every kind of food. They took from four to eight quarts daily, and abstained from nourishment for three or four days. The visceral indurations, the sallow colour of the skin, and the brown fur on the tongue, soon disappeared; at the end of four days they were allowed barley water for their diet, and as much burdock tea as they could swallow: gentle tonics were then ordered, and the patients gradually recovered. Pains in the extremities returned in a few cases, and were cured with the decoction of sarsaparilla.*

The use of a diluting, cooling, and aperient regimen, prepares the patient, and after a few days, if the paroxysms are not arrested, the bark will complete the cure: the mischief produced by the early exhibition of that medicine, is by this plan avoided; and the ague, instead of being deeply fixed, becomes manageable, and is speedily removed.† This plan certainly accords with the analogies which connect these diseases with remittents, which are treated by it with success. Remittents, attended with delirium, I have cured completely by vegetable food, as tapioca, arrow root, barley water. For the detail of my observations, see Med. Record. Vol. II. 5.

On the use of Bleeding in Intermitting and Remitting Fevers.

This remedy, though it does not in general alone cure these diseases, is a valuable assistant. It sometimes succeeds without other remedies. In the late epidemic above Burlington, (New Jersey,) Dr. John Heineken cured intermit-

* Medical Recorder for 1822. † Senac.

tents by one or two bleedings. The same thing is true of mild remittents, and also of quotidians, &c. Senac states, that double were converted into simple tertians, by a single venesection; the paroxysms were rendered much milder and returned later; the febrile heat and pain in the head were less distressing; the sweats were less profuse, and all the functions went on more regularly.* Intermittents may be regarded as continued fevers with intervals between the paroxysms, and there can be no reason why they should not be cured by the same means. In general, however, other remedies will be found necessary. Under what circumstances, and to what degree is it to be used? If the person be much debilitated, or the case be very mild, it should not be resorted to. Many fevers of this type may be cured without it, even though their character be serious. But as it is recommended as the result of the experience of a long practice by one of the most celebrated physicians of modern times, and as it mitigates the symptoms in every respect, it is better to err on the safe side by practising it, even when not absolutely† necessary. Pringle states the same thing with regard to the intermittents in the low countries: he found that bleeding once or twice had an excellent effect with opening medicine and diluting drinks, which were continued till the disease disappeared. Dr. R. Jackson also found it to moderate the symptoms, and assist the bark, in Carolina. Where the blood vessels are full, the fever high, the pain in the head acute, and the skin affected with a burning heat, the fever in general becomes obstinate, if bloodletting be not practised; it is then absolutely indispensable, and its neglect under these circumstances would only render the bark dangerous from its stimulating quality. With this the experience of Cleghorn entirely corresponds: after bleeding to ten or twelve ounces when first called, if a violent headache, delirium, and great heat and pain in the bowels were present, he repeated it. The fever immediately abated, the intermissions were more complete; and the operation of the evacuants was safer and more successful; the deep raving sleep and inflammation of the viscera were thus suspended.‡ If, however, a typhous disposition had been created by the continued and extreme heat, as was evinced by the great loss of strength, and the patient's debilitated looks, or if the patient had been extremely weakened by vomiting, purging or sweating, bleeding was omitted, or used in very small quantities.§ When strong fever

* Senac, p. 170—1.
† Ibid. p. 172.
‡ Cleghorn, p. 197—8.
§ Ibid. p. 198.

exists in diseases of this type, its symptoms and diathesis will be found to extend into the intermission, and bleeding from the best experience even then will be advisable,* and the quantity must be regulated by the violence of the case. Senac relates, that in an epidemic under his observation, no relief was obtained from the fever (double tertian) till after three or four bloodlettings. The pains of the head were so excessive and acute, in many cases, that it was repeated to six times. The disease without venesection became continued, after great increase of the symptoms; but when the system had been sufficiently depleted, it soon remitted, and other remedies were administered with success. These injunctions are enforced by Hoffman, who states, that in quotidians or double tertians in the plethoric, or those inclined to be so, he never gave the bark without drawing blood to a greater or less extent: and in treating them he was always regulated by the phlogistic character of the system. Lind ordered a few ounces of blood to be drawn where there was a cough and pain in the side, affecting the breathing. In the intermittent fever of Bengal, the most common type of fever among the natives, depletion is found necessary previous to the administration of tonics: purgatives, however, in that country are generally used for that purpose.† In tertian fevers of a violent and spurious kind, Senac mentions that if bloodletting was used too sparingly, other remedies were tried in vain;‡ and when through obstinacy it had been omitted, and was had recourse to, it produced immediate relief, and finally a cure. One or two bloodlettings will generally be sufficient; and if the paroxysms do not endanger life, or do an injury to the functions of the body, if the intermission be perfect and the paroxysms be so moderate that they can be borne, it may be dispensed with: and it should never be resorted to where cachexy or manifest debility of the system has taken place.§ It is to be regarded generally only as an assistant, by which the paroxysms are abated in violence, but their suspension must depend on some other remedy. To use it profusely would be madness in the extreme. The king of Spain fell a victim to this imprudence. When the pulse and the fever demands, it should be used freely.‖

Dr. Johnson, in the remittent fevers of hot climates, advises bleeding, till the head and præcordia are relieved, with-

* Senac, p. 172. † Johnson.

‡ By spurious tertians are meant those whose fits continue longer than twelve hours.

§ Senac, p. 174—5. ‖ Ibid.

out regard to quantity. It should be taken in the height of the paroxysm, which it will often shorten or entirely arrest; it should be drawn in a full stream, and received into the centre and not against the sides of the basin, which should be smooth, otherwise the inflammatory buff will not appear. Local bleeding from the head and epigastrium, he also advises, as preparatory to blisters on these parts.

Dr. Cooke of Virginia, also used it in the late epidemic of that state, and advised that it should be taken in the same free manner. Where the delirium is great, and the system from a state of high health has been suddenly thrown into fever, of which the symptoms are excessively violent, bleeding in this decided manner is the only plan. It was practised by Dr. Rush, in 1793, and with the happiest effect. When the attack is excessively severe, it is evident that the poison must have been taken in in large quantities; the free abstraction of blood, therefore, we should think, was the best mode of relief. This, however, depends upon the character of the epidemic. The violence of the attack, however, whatever may be its cause, requires prompt and vigorous measures.

In determining the propriety of depletion in any state of fevers, the hints formerly given on the effects of climate, season and temperament, should be recollected. In the young, plethoric, and active, depletion is more indicated. The same may be said of fevers which occur early in the spring, when the weather is cold, and a disposition to coughs and pneumonic affections is combined. The people from the North also require more depletion than those of Southern climates. These remarks, however, apply particularly to cases where the fever is violent, when it is epidemic, &c.

Diet in this state of the disease is of the utmost consequence. Its quality, quantity, and time of exhibition, should be regulated with precision. In this country, these directions will, no doubt, to many seem superfluous; but any circumstance, which increases the tendency of the system to recovery, should not be disregarded. It is therefore considered that at the same time that blood-letting is advised, the diet should be light, even on the days of intermission. The time the meal should be taken, should be at the greatest possible distance from the period of the attack, in order that the digestion may be complete before the paroxysm comes on, and that it may be performed when the powers of the system are least under the dominion of the disease. One principal meal in twenty-four hours, upon the day of intermission, may be taken about the middle of the day in tertian

fevers, whose intermission is forty-eight hours. If the fever be moderate, the intervals entirely free and shew no dangerous tendency, this meal may be of solid animal food; but if phlogistic symptoms appear, it must consist of simple vegetable materials; and if remittent and violent, of whey or water only.

On the use of Purgatives, Emetics, Sudorifics, &c.

The whole tract of the alimentary canal must be thoroughly evacuated, and diluents also joined with them to facilitate their operation. The clearing out of the alimentary canal is of the last importance, as without it these diseases often become obstinate and impossible to be removed. Emetics are so powerful in these diseases, that they often arrest them without other medicines; and if other means are necessary, they prepare for their exhibition. Senac has prevented the recurrence of agues for many months, by the repeated use of these medicines, both in young and adult persons, by observing the premonitory systems of attack. In general they are more salutary than purgatives; and when the bowels are particularly irritable it is desirable to use the ipecacuanha. Ancient as well as modern writers concur in the use of these articles. Riverius states that he considers emetics particularly valuable, when used three mornings in succession.* It however requires great powers of constitution to stand such an operation. Dr. Jackson thought that they abated fever and assisted the effect of the bark in South Carolina.† The symptoms, which more particularly indicate a repetition of the emetic to be necessary in fevers, are acid and disagreeable eructations, want of appetite, pain in the forehead, and fur on the back part of the tongue. The evacuation of the contents of the stomach generally relieves them.‡ As soon as the emetic is taken, and sickness produced, the use of warm water in the quantity of a pint or more to distend the stomach, will be proper, to be repeated as often as the sickness comes on; cold water will answer equally well, and is used for this purpose in Italy. Ipecacuanha will be found to be the most manageable and certain emetic; tartarized antimony alone often passes by the bowels, or comes too violently; a grain of tartar emetic with fifteen or twenty of ipecacuanha will be found to unite the certainty of the one and the thorough operation of the other. Emetics are improper when the patient has weak lungs, and in cachectic cases: in

* Senac. † Essay on the Intermit. Fev. of Amer. p. 315. 1776. ‡ Senac.

many instances, the system is affected with spasms from a peculiar idiosyncrasy, by these medicines. Sometimes the stomach is so delicate, that the irritation produced by them is excessive. In 1804 and 1823, in this country, many lives were lost from this cause. Hernia, a disposition to apoplexy, also forbid them. The bowels must also be thoroughly evacuated, and it is recommended to open them gently, previous to giving the emetic. Every cause of febrile disposition must be removed, and nothing is more important for this purpose than the complete evacuation of the bowels. Without it other remedies are wholly without power. Dr. Jackson always used purges in the agues of the spring in South Carolina,* and bears testimony to their happy effects in rendering the fits regular and distinct, of course in taking away their dangerous character. These remedies have been given alone to cure these diseases, and have acquired great celebrity. Thus Riverius relied upon calomel and jalap, and Senac mentions that in his day a powder composed of scammony, turpith mineral, jalap, senna, cream of tartar, rhubarb, cinnamon, and ginger, was used as a popular remedy with great success. These drastic remedies, however, are unnecessary; frequent repetition of milder purgatives will be found more useful when the intestines are loaded with bile, and the fever is high.† The bowels must be kept open during the cure, not only because it facilitates it, but because that costiveness sometimes produces a return of the fever, and also that laxatives combined with the ordinary remedies cure it, when without them they have no effect. Purgatives will only retard the cure, when given in too large and debilitating doses; and this may be the case in warm latitudes even when given moderately.‡ They are useful assistants to the other plans: and Senac observes if on the exhibition of a purgative the fever should break out, it must be owing to the accumulation of the poison in the body, which thus was brought into action. In these cases the cause existed, and any other violent agent would equally have produced the same effect. In the summer and autumnal fevers of this country Dr. Cooke states that calomel, aloes, rhubarb, jalap, scammony, colocynth, senna, and calcined magnesia, are the purgatives best adapted to make a decided impression. The degree of their power is according to the order of the above

* See his Essay on the Intermittent Fever of America, p. 316, 320.
† Senac, p. 187.
‡ R. Jackson, 1791, p. 317.

arrangement; calomel first, aloes next, &c. They have the quality of producing consistent and coloured discharges, and relieve as soon as this result takes place. Whereas salts of all kinds, oil and gamboge, he thinks not at all adapted to this object, because they produce only serous evacuations. If the calomel should affect the mouth, its use should be dropped till the ptyalism subsides. The continuance of these purgatives as soon as coloured and constant evacuations are produced relieves the stupor, the suffusion of the eyes, &c. and if these coloured stools are not produced, the fate of the patient is inevitable, as suffusion of the face, hæmorrhage, convulsive motions, too certainly announce. The discharge of dark coloured stools and the immediate favourable change of symptoms produced by it is not peculiar to our summer epidemics; it it also true of our winter diseases. The production of these evacuations Dr. Cook regards as essential in the cure of bilious fevers. They may be combined with stimulants, as camphor, assafœtida, when debility demands their aid, or with bloodletting when the diathesis is too phlogistic. They always have a decidedly valuable effect. He treats the sequelæ of these fevers, in the same manner: a dropsy, enlarged liver and spleen, or any of the evils that follow these fevers, are effectually relieved by the purgative plan. He regards patients with these sequelæ as still labouring under the fever, and the bark is unnecessary: blistering in these cases Dr. Cooke sometimes uses, to support the system when it is brought too low from the continued operation of purgatives.

Dr. Johnson states that as soon as purgatives begin to operate, the head in the remittents of warm climates is relieved by the diversion of the blood to the bowels, and the copious secretions which take place from them: castor oil he says only clears out the bowels, of those matters which may exist there; neutral salts and jalap produce watery evacuations, whilst calomel increases the secretion of the bile, as well as the discharge of particular matters from the bowels. Calomel and jalap, so much praised by Riverius, Rush, Armstrong, &c. he considers as an excellent combination.

This plan of treating these sequelæ corresponds with the opinion of Senac, who states that these medicines are particularly necessary when the intermittent is of long standing, when the abdomen is tumid and hard, the skin tinged with bile; the urine high colored and thick, and the habit cachectic; then bark and other febrifuge medicines are of no use; the complete discharge of the bowels becomes necessary, and

this discharge must be kept up by the use of such laxatives and aperients as have a permanent effect upon the system, and by their long continued operation thoroughly rid it of any tendency to plethora. For this purpose he thinks that any of the neutral salts will be found useful, as the sulphate of potash, soda, or magnesia, and it must be continued till it move the bowels several times a day.* These directions apply also to fevers which are violent and of recent origin, particularly where the liver is affected with pain; the urine red and lateritious, and the fever high. Senac succeeded by this plan when no other would do. In general he administered the salts with some laxative vegetable juices, as burdock (arctium lappa) tea. Whey he recommends highly as a solvent for the cathartic medicine. So great was his confidence in the aperient and mildly laxative plan, that after the use of the general remedies mentioned above, as a preparatory means to the bark, he did not hesitate to continue it for some time,† and always with satisfaction. Lind premised an emetic and a purge in these diseases, and was completely successful. Cleghorn states that when he first became acquainted with the fevers of Minorca, evacuations were his principal resource; in inflammation of the viscera, he used repeated bleedings, and cleared out the bowels by cathartics; at last, however, he found that one or two cathartics and venesections were quite sufficient. Purgatives are then indispensable.

On the Proper time of using these Remedies.

With regard to the time of using these depleting remedies when indicated, venesection is useful, both during the paroxysm and in the intermission,‡ to mitigate the former, and as a prophylactic in the latter, and prepare for other remedies. In the cold fit this remedy is absolutely dangerous. In the old it might be certain death. Other evacuating remedies, are not without danger. In the cold fit emetics are improper; though on this subject there is some contradictory testimony.§ Riverius states that vomiting at the commencement of a paroxysm renders it milder and shorter.‖ Senac gives several other authorities in favour of this practice; a physician of England was in the habit of giving an emetic during a practice of twenty years, at the commencement of the cold fit.¶ In England and this country the emetic is now given so as to operate before the par-

* Senac, p. 191—2. † Senac. ‡ Ibid. § Senac, p. 196. ‖ Ibid.
¶ Senac, p. 197.

oxysm commences. This was the opinion of Sydenham: Senac, however, disagrees with the practice, and thinks that the emetic had better be omitted. On this point there appears to exist great diversity of opinion. Celsus advised after the commencement of the cold stage, an emetic of salt water as the best for this purpose. Huxham also approves of the same practice, after previous bleeding, which renders them more safe. The remedy is violent; if, however, the system is capable of bearing it, any period either of the paroxysm or the intermission is proper, provided the person be not old, cachectic, or debilitated by frequent accessions of the disease, or the fit is so severe as to threaten danger to life. In the latter case it will be most judicious to administer the emetic at the greatest possible distance from the period of attack. In northern latitudes where there is no inflammation of the stomach and bowels combined with these diseases, this practice may be very proper under the limitation above stated; but as in southern countries, and in the hot seasons of northern ones, this inflammation might be present with great irritability of the organ, or emetics may produce it, and a debilitated state of the general system, they had better be avoided. The Spaniards and Italians bear these medicines badly.* Purgatives are therefore found to be more proper in warm climates; senna, manna, cream of tartar, and above all, the sulphate of magnesia is recommended from its mildness and speedy operation.† In southern latitudes one venesection and purge as preparatory means we are taught to believe will be found to be sufficient.‡

With regard to the period of the exhibition of purgatives, the same objections are made. The intermission is undoubtedly the proper time for the administration of any remedy which agitates the system so much as some of the common drastic purgatives do. The evacuation produced by these medicines is intended to abate the violence of the paroxysm; of course to delay it till immediately before its accession is not judicious. If this mode of depletion be proper,§ it is for the alleviation of the paroxysm, and should be given five or six hours before it comes on. In semi-tertians and remittents, a cathartic was given early on the day of the moderate paroxysm by Cleghorn, with glysters to make it operate before the middle of the day. In general, the purgative, according to him, should be given in the greatest interval. In many cases, he succeeded by this plan alone, without the bark. Lind recommends the exhibition of evacuants (an emetic and

* Cleghorn, p. 202. † Ibid. ‡ Cleghorn. § Senac, p. 198.

a purge) in the intermission, and then to follow it with the bark.*

With regard to the use of cordials and stimulants in the cold stage, they are certainly more proper than emetics and purgatives; but as they tend to increase the fever, they should not be used excepting this stage is extreme, and then they should be gentle.† The system, during the whole paroxysm, should, as a general rule, be kept quiet, and not be disturbed by any medicine of a violent nature, excepting during the febrile heat, when acid drinks, with syrup, or a solution of nitre may be used. It is necessary to avoid such measures as will exhaust and excessively debilitate by perspiration, as it disposes the disease to become continued.

Mercury.

Salivation is perhaps the most certain remedy for intermitting and remitting bilious fevers; it, however, sometimes fails. Dr. Johnson advises in those of a high grade, which appear in Bengal, the exhibition of a scruple of calomel with a half or fourth of a grain of opium, after copious venesection continued till the præcordia and head are completely relieved; it quiets the bowels and rather constipates than purges; in a few hours a dose of salts or castor oil brings away a copious discharge of black fœtid matter; the head and epigastrium are immediately relieved. The calomel is then continued in the dose of five or ten grains every five or six hours till the salivation is effected, which generally effects the cure. The dose of calomel might be increased and given more frequently, or combined with frictions of the mercurial ointment, and its application as a dressing to blisters. Salivation succeeds in the climate of the middle and southern states; but in the fevers of the winter and spring it is not so necessary.

On Cold Externally and Internally Administered.

The cold affusion in the remittent as well as intermittent forms has been found to be extremely valuable. Frequent instances are recorded of the entire suspension of these fevers by patients plunging into water in the delirium which attends their paroxysms. Dr. Chabert of New Orleans states that the yellow fever was completely cured by it in a

* Lind on Agues, p. 216. † Senac, p. 199.

delirious patient who fell into a well. We might cite other facts to show that this symptom of these fevers is completely suspended by it. To produce its greatest benefit, it should be used when the paroxysm is at its height, and should be applied by dashing the water over the body or plunging the patient into it, and repeating it frequently. The tepid bath may be used in cases where, from debility, the cold would be improper; its temperature of course must be below that of the body; it operates in the same manner as the cold bath only less violently. Williamson* states that the cold affusion has been used from time immemorial in fevers by the Brahmins, and that if applied early it would prevent the degeneration of these fevers into typhus, as also determinations to the liver, which so frequently follow these diseases. Cool air has a fine effect in the febrile paroxysm; it depletes and composes the system; the malignant fevers of the seaports become mild and manageable in the West Indies, when the patient is carried to the highlands where the air is cool and pleasant; a patient should on this account be removed to the most airy and elevated part of the house, because he is more exposed to breezes, and more removed from the sources of exhalation. The local application of cold is also useful to the head by clothes wetted with cold water; it eases pain, and, united with venesection, it will be found to be invaluable. Bruce relates that in Abyssinia violent fevers are relieved as late as the fifth day, by throwing water over the patient as he lies on his bed and repeating it soon after,† without drying him, or changing his bedclothes. Cold water also taken internally assisted. It should be postponed, till after free evacuations had been practised, and the stomach has been tranquillized by cold affusions on the surface.‡ In some instances, patients are prejudiced against the use of the cold bath. Water mixed with vinegar and applied to the skin with a sponge will be permitted, when, by affusion, it would be considered dangerous. Its effect even in this manner is decided.

It is not only in the hot stage of the remittents that this remedy is useful; it also succeeds in arresting the paroxysm of agues by being applied even in the cold stage; for this purpose, it has been used in South Carolina by a friend of the writer of this paper in his own case, and with the most

* See Oriental Field Sports, quoted by Johnson, p. 53.
† Ibid. p. 54.
‡ Johnson, p. 54.

decided good effect. On the Mississippi also it is said it has been tried with advantage for the same purpose. In general, however, it will be found prudent till more extensive experience confirm these results, to have recourse to the cold affusion only, when the heat of the body is above 98, and during the exacerbation, and if the fit is moderate tepid water may be used. The effect from the latter application will be salutary though less powerful. Ether or spirits of wine mixed with water and applied to the surface, the patient being placed in a blast of air so that he cannot inhale the vapor, will produce, without alarming the prejudices of friends, the desired refrigeration.

Recapitulation of the Measures to be used in the Paroxysm.

On the accession of the chill, the patient should retire to bed, which should be placed in a large room with a northern exposure, take some some sudorific medicine, as an effervescing draught of salt of tartar and lime juice, 1 scr. of the former to a sufficient quantity of the latter to produce saturation, made into a pleasantly acidulated drink. If the cold fit should be excessively violent, Lind recommends a tea spoonful of the spirit of hartshorn taken in a draught of some tea or whey, to stimulate the system and to excite perspiration. This may be assisted by bottles of hot water applied to the feet, the loins, epigastrium, &c. to shorten the paroxysm and produce a profuse sweat. By this plan, used both in the cold and in the hot stage, in the hot summer of 1765, Dr. Lind states that agues have been easily removed, and when given in the subsequent paroxysms, they prove equally serviceable. The patient may take such drinks as these: boiled water sweetened with sugar, and rendered pleasantly acid by lemon juice, or by elixir of vitriol, or by slicing apples into it; barley water sweetened, and a little vinegar put into it; a solution of nitre in flaxseed tea. If these drinks be taken cold, and swallowed in small quantities during the paroxysm, he feels refreshed. Towards the decline of the disease, when he becomes debilitated, it will be proper to mix wine with it to keep up the strength.*

In the hot fit, Lind advises, when it is protracted to an unusual length, or accompanied with alarming symptoms, a blister to the back, and tartar emetic administered in small doses, with an opiate after its operation; and in the future

* Cleghorn, p. 196.

paroxysms, the hot fit, he says, "may be shortened by the exhibition of an opiate in a full dose, after its commencement, without any antimonial medicine." This method, he states, quickly abates the fever and produces a sweat, as it is from the protracted continuance of the hot fit that the danger is to be apprehended. With regard to this practice I have never seen it tried. I have heard, however, a practitioner of Philadelphia state that he had used opium at night in the remittent fevers of summer, with the happiest effect. As Lind is a judicious writer, and practised with success in Britain in the fevers of 1765–6–7, losing out of four or five hundred patients only two, we think his testimony deserves attention. As this practice was tried in England in a hot summer, and was also successful in tropical latitudes, we would observe that the debility produced by the heat, which always creates a typhous disposition in these diseases, accounts for this success, and shows under what state of the system it must be used; and when it is recollected that sometimes extravasations of blood take place in the hot fit within the cranium, bleeding will be found more generally proper in the hot stage than opium, particularly when the case is recent. Cleghorn found that bleeding relieved the patient immediately, abated the paroxysms, brought on the perspiration, and prepared for the bark, and it is only, therefore, in debilitated cases, that venesection is improper, and in which opium would be safe.

When the reaction is excessively violent, Dr. Cooke of Virginia states, that in the hot fit, its reduction should be the indication in view, and the bleeding should be continued without regard to quantity or time till this object is accomplished. If any part of the body be violently pained or oppressed, this plan will be more strongly indicated. The purgatives after it operate better, and the fits are more manageable. These measures must, however, be regulated by the character of the prevailing epidemic. Sometimes bleeding is borne without danger, at others a small quantity debilitates excessively. The strength of the patient before the attack, and the continued steadiness of the pulse during the operation, will show the propriety of continuing it. Violent pains are often relieved by one bleeding, when purges, even though long continued, have no effect.

Dr. Cooke relates a case in which blood was taken to an enormous extent in the paroxysm; the disease moderated, and it disappeared for a time without the use of medicine. He even recommends the warm bath or emetics, when the

pulse is low, to raise it, preparatory to bleeding: he then takes it in large quantities and with great relief.

Excessively stimulating articles should not be used to excite the perspiration during the hot fit, particularly if the system be inflammatory; and lest they should excite too much, aperients should be mixed with them. Senac advises that in certain affections of the liver or spleen, and that when the bowels are out of order, or the system plethoric, sweating by stimulating articles is improper.*

On the Prevention of the Paroxysm.

If the system be prepared according to the former directions, and the patient is brought happily through the paroxysm, it only remains to prevent it. For this purpose the bark, given in the form of the sulphate of quinine, every two hours, in the dose of two grains, will be found useful, and it should be administered as early as possible after a proper state of the system is induced. As this medicine cannot be procured in every part of our country, in the following remarks, though we speak of the bark, the quinine, if it can be got, should always be used. According to experiments made in Europe, one half and even a quarter of a grain of this medicine has been sufficient. It of course must be increased according to circumstances, the violence, &c. It may be administered by dissolving it in sulphuric acid, in the proportion of a minim to every grain of the salt. If its combination with wine be advisable, as in cases where moderate stimulation is necessary, five grains of the sulphate to a pint of sherry are recommended; or the same quantity in eight ounces of rectified spirit. Astringent substances, Paris tells us, as the infusum rosæ compositum, are improper vehicles, because the infusion precipitates the quinine from its solution. Cream of tartar also decomposes the sulphate of quinine. If the sulphate cannot be procured, the extract of bark prepared in the mode of Barry of London, by evaporating it in vacuo, may be used with effect. As the bark is precipitated from its infusion and decoction, according to Fourcroy, by the combination of the extractive matter with the oxygen of the atmosphere, the infusion and decoction should therefore be prepared in close vessels, or in those which have narrow mouths, and kept from the contact of air. Sydenham prefers the powder of the bark to any other preparation;

* Senac.

after the sulphate of quinine it is certainly the best. The extract, according to Barry's mode, is the next; the infusion, then the decoction, and then the tincture, are the order of their respective values; but this will often be varied according to circumstances. Sometimes the tincture, from the alcohol it contains, gives an efficacy to the bark which other preparations do not possess. With regard to the dose, some practitioners administer it in the quantity of half an oz. frequently repeated.* Various combinations also increase its efficacy: the muriate of ammonia has been recommended, when hepatic affections are united with it. Cascarilla and cinnamon, alum, opium, powdered mustard, alkalies, and absorbent earths, have all been praised as valuable assistants. Rhubarb was considered by Mead as a useful assistant. Sulphate of potash, or any cooling purgative is valuable. Stimulating aromatics, as pepper, in other instances will be found useful, particularly where the habit is phlegmatic, and disposed to dropsy, and without any disposition to inflammatory diathesis. The following formula has been much celebrated:

R. Cinchon. Pulv.
Potass. Supertart. āā ℥i.
Caryophyll. Contrit. No. xxx.
M. detur drachma cum semisse tert. horis.

The convenience, agreeableness, and efficacy of the preparation will be increased by substituting the sulphate of quinine. The Virginia snake root, and myrrh, have also been combined with the bark with great success. Dr. R. Jackson thought the combination of the serpentaria rendered the cure more certain. Calomel in union with this medicine is valuable, according to Dr. Barton, in affections of the spleen complicated with ague. A purgative medicine, such as the sulphate of potash with senna, in these cases is recommended with the bark, as they prevent, in the intermissions, symptoms of fever, and if there should be any obstruction, have a tendency to relieve it.

The combination recommended by Dr. Lind, on the authority of Mr. Parker, will be found to be valuable.

R. Cinchon pulv. ℈ii.
Sal. tart.
Et serpentar. Virginian, āā gr. xii.
M. et detur quaque hora.

* Dr. R. Jackson, p. 321.

Seven or eight doses of this medicine effectually prevents the return of the fit, and a repetition of it six or eight days after, preserves against a relapse.*

With regard to the exhibition of the bark, this author gave it with perfect safety, immediately after proper preparation by an emetic and a purgative. As a general rule, he thought it necessary to give it as early as possible after the preparation, as these diseases are often fatal in the second paroxysm—this experience is confirmed by that of Cleghorn. When the fit was thus arrested, jaundice and dropsy, the usual early effects of it when uncontrolled, were prevented. These affections were proportional to the number of paroxysms, or to the continuance of the hot fit. If the fever continued for some days without a remission, swelling of the legs and belly were the result, as also violent headache and vertigo, so that some patients did not recover for two or three weeks. When apparently slight attacks of the ague produced these results, the bark was never prescribed till the patient was free from fever, and then, without regard to cough or any chronic indisposition, it was given in very large doses, from one to two drachms every two hours. He continued it for ten days or a fortnight regularly, and in damp weather, or during an easterly wind, for several months, in order to prevent a relapse: it was given in milk, drinking it as soon as it is mixed, and washing the mouth with milk immediately afterwards. Juleps, he thinks, with one third or one fourth of brandy, are the best mode of giving the bark; and if the patient be not accustomed to take spirits, the spirit vol. ammon. and the tincture of myrrh may be substituted. Bark clysters given every three or four hours are equally effectual as when given by the mouth. A purge must be premised, and laudanum combined with the injections.† In very mild cases, if general remedies be properly exhibited, and the system be sufficiently depleted, the paroxysm may be prevented by sudorifics alone, particularly in the more early stages.‡ They should consist of some mild aperient and bitter vegetables, as the eupatorium perfoliatum, the burdoch, the chamomile, which should be drunk during the intermission in large quantities—five or six pounds in the course of the day; the patient should lie quietly in bed, and after the sweat commences he should continue the drink for several hours.§ Warm water, even taken a few hours before the expected paroxysm, has succeded in preventing it. Senac

* Lind, p. 77.
† Ibid. p. 217–18–19.
‡ Senac, p. 205.
§ Senac.

recommends particularly the use of sudorifics, to arrest these fevers, if the cold fit be violent and dangerous, as almost the only safe mode in which it can be counteracted. Other means, however, must be used to perform the cure. Here it may be proper to mention, that certain purgatives, as cream of tartar and magnesia, have been so celebrated in Europe formerly, as to acquire the name of specifics for curing these diseases. This fact should be remembered, as it may enable us to substitute these articles, or join them with other active febrifuges, according to circumstances.

The use of sudorifics, diluents, and purgatives as preventives, is particularly applicable to those cases where the patient is feverish, and requires depletion. Laudanum succeeds taken in the dose of thirty drops on the approach of the attack, till warmth of skin is produced; and if this does not appear in the first ten or fifteen minutes, ten or fifteen drops more are given, never exceeding sixty drops in an hour.* The skin becomes soft and the feelings pleasant and agreeable soon after taking the medicine, and the fit is suspended. For the same purpose, the union of camphor, of volatile alkali with opium, and also sulphuric ether administered by itself, have been found valuable.† The application of the tourniquet to the arm or leg previous to the fit, has the same effect immediately. This remedy may be used in all cases, whether the fit is serious, or the system excessively febrile.

Circumstances which Modify the Action of the Bark, and render its suspension necessary.

The bark often, from its stimulating quality, has a tendency to produce heat and dryness of the skin, stricture of the breast, pain in the hypochondriac regions, and often suppuration of the liver: sometimes the disease cannot be cured by it—it only suspends it, and the patient is attacked with an irregular and concealed fever, and drags out a miserable existence for many months‡. His countenance is pale or yellow, and swelled, his legs anasarcous, and thus the disease increases in power: sometimes a deep sleep or stupor comes on about the same hour; at others, diarrhea or dysentery is the form of attack: wandering spasmodic and excruciating pains appear in the limbs, bowels, and breast, with great suffering.§ As soon as the disease returns in its regular form,

* Trotter, Medicina Nautica, quoted by Thomas. † Thomas, p. 8–9.
‡ Senac, p. 231. § Ibid.

these symptoms disappear, and it is discovered that the bark, improperly administered, produced the whole evil: sometimes, instead of these irregular symptoms, the disease changes into a double tertian, a quartan, or becomes continued, and though this change is not produced, the symptoms become aggravated and obstinate.* Sydenham relates the case of an officer and an apothecary who died from the effects of the bark given previous to the paroxysm. It is therefore necessary to be careful in administering this medicine, to prepare the system properly, and the foregoing directions on this subject will now appear not to be improper.† These dreadful results, however, rarely take place, and are to be attributed to its improper use, before proper preparation is made.‡ By venesection, the danger of congestions in the liver and the spleen will be prevented, and by keeping the bowels regular, the strength of the digestive functions will be preserved, and the bark will be retained; the skin also must be kept moist by the use of sudorifics, if there should be fever: if it be hot and dry, the bark will increase this symptom, and never be successful as long as it continues: the fever, indeed, may become continued, and the patient's life endangered. If the sense of heat be confined to the internal parts, the bark also will be hurtful.§ Cooling and aperient medicines soon render this symptom milder, and the patient in a short time can take it, and he soon recovers: the impropriety, therefore, of attempting to cure this disease without previous preparation by the bark alone, is evident. Pains in the hypochondria, weight at the stomach, stricture across the breast, and burning heat, are its results, and if it be continued under these circumstances, diseased liver or spleen, jaundice, dropsy, or a continued fever, takes place: it is therefore necessary to attend to the due preparation of the system by previous or accompanying medicines, otherwise the disease may even be fatal.‖ By thus attending to the state of the system in all its parts and functions this disease may be safely relieved by this invaluable medicine. Premising proper evacuants, Cleghorn gave the bark in the fevers of Minorca, if, after leaving the patient to nature for a few paroxysms, he became giddy, weak and languid. He gave it in the dose of a drachm every two or three hours, till the following day at noon. In some instances, the disease continued without mitigation, to the seventh or ninth day. The bark strengthened the patient, and enabled him to bear the succeeding fit, restrained the hectical sweats, which

* Senac. † Ibid. ‡ Ibid. § Ibid. ‖ Ibid.

frequently come on towards the close of these diseases. The bark was continued in the intervals, increased the fever, and produced great commotion, raving, delirium, union of the sixth and seventh paroxysms; the patient, however, though apparently desperate, recovered. By these means he cured the most formidable intermittent and remittent fevers, whether malignant or otherwise, in one or two weeks.

Circumstances which render the Combination of other Medicines necessary with the Bark.

Sometimes the bark produces great sickness at stomach, and cannot be borne. Senac tells us that he succeeded perfectly in these cases, by giving an emetic, and following it by a decoction of the bark, administered in the form of injection, three or four times a day. The bowels were thus kept open, and the patient happily recovered. Salt of tartar and lemon juice, mint water and laudanum will generally succeed in stopping the vomiting. Obstinate forms of the disease, which two ounces of the bark taken by the mouth had failed to remove, were cured by Lind by two ounces of the extract taken in clysters. Six ounces were given in this way, after it had been unsuccessful by the mouth. From the difficulty of giving it by the mouth, laudanum and soap liniment applied to the spine of the children in equal parts, prevented the fit. To remove the disease in them, he purged with magnesia, and then gave injections of the extract of bark. It was also applied in poultices to the wrists and stomach, or secured between the folds of a linen jacket, and worn next the skin, or they were dipt in a decoction of it. Blisters to the back relieved heaviness of the head produced by these fevers in young subjects.* When it produces purging, which is often the case, so as to throw the system into a febrile state during the first days, five or six operations will do no harm—on the contrary, they often facilitate the cure. If it continue for several days, however, it must be moderated, and the patient will recover more speedily. The use of laudanum, creta preparata, kino, &c. will produce this effect.† After the commotion excited in the system by the purgative effect of the medicine, Senac tells us that the first paroxysm may probably be more severe; the next, however, will be milder. This corresponds entirely with the observation of Cleghorn. When this medicine excites these apparently dangerous ef-

* Lind, p. 222-3. † Senac.

fects, in general the paroxysm does not recur, and the patient recovers. The bark must be continued for six or eight days after the fever has disappeared, and gradually diminished, to be resumed again at the interval of several days, and continued till the secretions of the bile, urine, and the health in every respect are perfectly restored.

The preparatory remedies are to be administered with the more vigor in proportion to the violence of the symptoms; the bark will then be resorted to with greater certainty; it must be given at shorter intervals in violent cases, and commenced as early as possible; and it will be necessary to combine it with appropriate purgatives, sudorifics, &c. as the bowels or skin, &c. appear to be disordered. Sometimes, when the patient has neglected the use of means, early in the disease, or injured himself by vomits, exercise, and the bowels are inflamed, or loaded with bile, the fits protracted and running into each other; or when coma, syncope, dissolving sweats, and excessive debility attend, the case becomes perplexing; and it is difficult to lay down positive rules for our direction.* The best general indication is to palliate the most pressing symptoms, watch in the evening, the night, and the early part of the morning, for a proper occasion for the administration of the bark, on the slightest evidence of a remission.† If purging can be borne, an ounce of epsom salts, with half an ounce of bark, may be divided into four equal parts and one taken every two hours. The next fit is milder, an intermission takes place, and the bark may be continued alone to complete the cure.‡ Cordials, of which wine is the best, may be substituted, if the patient is too weak to bear the purgative. Six or eight drachms of the bark must be given in ten or twelve hours, if any good effect is to be expected from it; if a smaller quantity is given, the fit comes on and is fatal.‖ Torti advises an ounce or six drachms of the bark to be swallowed at once, as the most effectual mode of administering it.§

Sometimes purgative mineral waters alone cure obstinate intermittents, particularly quartans. These fevers are frequently so difficult to be relieved, that they have been considered as the opprobria of our art. A strict diet, occasional blood letting, which always mitigates the power of the paroxysm, and emetics occasionally, are considered by Senac as

* Cleghorn, p. 210.
† Ibid. p. 211.
‡ Ibid.
‖ Cleghorn, p. 212. § Ibid.

valuable assistants in this form; on purgatives he has in general not the same reliance. The bowels however must be kept gently open.

We have stated in a former part of this essay that quartans were to be considered as the weakest type of fever with regard to their degree of action, of course they require medicines of a more stimulating character: accordingly heating articles, such as ginger, cascarilla, have been united with the bark, and have done much good in this form; the vegetable alkali also has been of service combined with the above medicines.* The diet should be cordial and aperient: the use of chabybeates and stimulating tonics combined with the bark, should be continued for a long time to prevent a relapse; and if the system show symptoms of fever, it must be treated more upon the depleting plan; and the heating and the cordial articles omitted. In the aged, who, in this type of fevers, sometimes die in the cold fit, emetics are sometimes found useful to prevent it, with the bark administered freely.†

Aromatics must be combined with the bark when the sickness of the stomach permits its exhibition: cloves, cinnamon, ginger, are proper for this purpose, and if they should be too stimulant, aperients must be united with them, or the system depleted by low diet or even venesection.‡ A watery infusion of bark holding some salt in solution would be more proper. If vomiting occur, lime juice and vegetable alkali, or laudanum, are advised.‖ Senac advises the removal of the affection of the stomach first, and then the administration of the bark. If the lungs are affected with cough, demulcents, as mucilage of gum arabic, syrups, &c. at the same time using depleting remedies, and if necessary blisters to the breast. When the liver and spleen are swelled, the use of calomel to salivation, with purgatives or laxatives according to the case, will be proper. If any other species of chronic debility exist, the use of tonics. having an eye to the character of the fever, must be had recourse to. Thus chlorosis combined with ague is treated successfully by emetics. The cure must therefore be commenced by these remedies, and aperients, bark, exercise in the open air in high and dry situations, will be useful in completing it.§ Other combinations will occur; which must be left to the judgment of the practitioner.

* Senac. † Senac. ‡ Ibid. ‖ Ibid. § Senac.

Circumstances arising out of the State of the System, which impede the success of the Bark, and how they are to be obviated.

After observing all these precautions, frequently the disease cannot be arrested. Senac reduces these to obstinacy of the fever, or affections of the abdominal viscera. Sometimes notwithstanding the preparation of the system the fever does not yield to the bark; and this obstinacy differs in different seasons. Dr. R. Jackson mentions that a small hard pulse, or one that was obscure and creeping, and clammy surface, indicated that the bark would be ineffectual in the climate of South Carolina.* In certain localities it is often hurtful, as near the sea and in some marshy districts, no doubt from the increased strength of the febrile poison. The viscera are then generally affected; recourse must be had first to emetics, and then to the use of aperient medicines, frequently repeated and assisted in their operation by diluting remedies.† The abuse of bark in these cases becomes dangerous; premature old age, melancholy, cachexy, are among its lamentable consequences.‡ A sense of heaviness, tightness of the chest, or sickness at the stomach, indicate the use of emetics and debilitating evacuating medicines.§ If the patient be costive, the stools brown, bilious, of a brick dust or black colour, purgatives, gentle emetics, with diluents, will soon remove all the difficulty, and the bark may be administered.‖

These affections Senac traces to the state of the liver. If the fever be violent, and the use of the bark be persevered in, it does harm; the stools become black, the patient feverish; the urine red, depositing a copious brick dust sediment. If the countenance be livid pale or yellowish, the belly hard and tumid, the disease is still in the system: purgatives are then the remedy; the neutral salts repeated daily for some time, till the fever abates, and the stools become natural, will be proper: till then the bark will be dangerous; it will be often too stimulating, even though it produce purging. The effect produced should be lenient, but often repeated; but if the hardness of the abdomen has been of long standing, and the other cachectic dispositions confirmed, more drastic remedies must be had recourse to, and then the use of calomel, aloes, jalap, &c. according to the plan of Dr. Cooke, must

* R. Jackson, p. 322. † Senac. ‡ Senac. § Ibid. ‖ Ibid.

be tried. Mercury, given in the dose of a gr. of calomel every night till salivation is produced, should be tried, and if that is not successful, a gr. of the extract of cicuta, given every night and morning, may be used: when the belly becomes soft, then the bark may be administered.* Purgatives are also to be relied upon in cases where a dropsical disposition comes on suddenly over the whole body. Senac mentions that he has also used diuretics. Juniper berries and nitre are advised.

If the disease be still incurable, the combination of purgatives with the bark may be tried, with other bitters as centaury: if it be so still, the water diet formerly mentioned, which was so successful in the Lancaster hospital, will succeed. These latter plans will be found necessary, particularly if the patient feels feverish after taking exercise, the pulse rises in frequency and force, and continues excited, though no excess has been committed in these respects. On certain changes of the weather, or irregularities in food, if this irregularity of the pulse occur, the bark is useless, and the above plan will be most likely to succeed.† Senac advises in some cases the patient to be left to nature; regulating the diet then is the only plan, and keeping the bowels open by purgatives.

If there be great pain in the head in the intermission, local bleeding often relieves it, and prepares for the bark. Cleghorn recommends the pediluvium and horse-radish to the soles of the feet. Emetics will also assist, as the pain often depends on the state of the stomach.† Laxatives repeated every day have an excellent effect. Venesection, when the patient still continues strong, relieves even the excessive sweats with which these diseases are sometimes combined; and if there be any signs of obstructions of the liver or internal fever, the use of purgatives will be necessary. If these perspirations proceed from excessive debility, tonics, with gentle laxatives, must be adopted, and the vinous solution of the bark, chalybeates and tonics, are then proper. Exercise also will increase their power. Dr. R. Jackson found that the ordinary duties of the soldier invigorated them as soon as they were able to return to them, and confirmed the cure.

On the Substitutes for the Bark.

The other bitters which are substituted for the bark, are the swietenia febrifuga, the salix latifolia, the cinchona Ca-

* Senac. † Ibid.

ribbea, the St. Lucia, and the Tellicheri bark; quassia, in the quantity of two drams to ℥x. of boiling water, suffered to cool, and given in the dose of a wine-glass every two hours in the intermission—the extract of gentian taken twice a day in the dose of from fifteen to twenty-five grains—twenty-five grains of the bark of cascarilla every three hours, have also been given. One grain and a half of the faba St. Ignatii, infused in a wine-glass full of boiling water, and given morning and night, has cured some cases, though it is uncertain. Lind, from whose book some of the above are taken, gives many prescriptions, of which the greater number are various combinations of the foregoing bitter medicines. Of all others he prefers fifteen grains of alum, ten of nutmeg, and ten of extract of bark, given twice a day. The rhatania is given in the dose of twenty grains every two hours; its virtues are however exaggerated. Charcoal, given in the dose of a scruple or half a dram thrice a day, has succeeded; it forms, however, dangerous concretions in the bowels. The Fowler's Solution, in the dose of ten drops three times a day, has succeeded when other remedies have failed: it should not be continued for more than three weeks, and often it will be necessary to give it in a smaller dose; when it produces vomiting and sickness, or anasarca, it should be discontinued. I have seen it cause a palsy of the muscles of the legs. Sometimes it is given with great success along with the cinchona, though they both failed when given alone. The sulphate of copper, in the dose of a quarter or half a grain every four or six hours, is very efficacious. Two grains of the oxyde of zinc, thrice a day, has cured intermittents, when other medicines have failed. The sulphate of zinc is also recommended.

The Treatment of Irregular Symptoms in Intermittent and Remittent Fevers.

Occasionally the anxiety and wandering pains in the chilly stage are so excessive, according to Cleghorn, as to induce the patient to commit suicide; they disappear as soon as the hot fit commences, and require no remedy but patience. If the system should be much prostrated, and the pulse excessively low, laudanum, with the spirits of hartshorn, will be proper to excite it. The headach and restlessness, the results of the hot fit, also disappear with the paroxysm. Hemorrhages from the nose often relieve these affections greatly, and if they do not induce great weakness, should not be

stopped.* If the belly be sore to the touch, fomentations and glysters are useful; if the pains are extremely violent, venesection; but as in hot seasons typhus is probable, it must be carefully guarded against by being moderate in this evacuation: if coma supervene, local bleeding and blisters will be useful on the back of the neck.† If hiccup occur, the same remedy applied to the pit of the stomach, and small doses of laudanum with tincture of castor, are advised. Sometimes an acute pain and pulsation in the hip denote the formation of an abscess; it must be brought forward by cataplasms, and as soon as a fluctuation is perceived must be opened by a deep incision, as the matter lodged beneath the posterior double edge of the external gluteus may insinuate itself deep in the muscles of the thigh, or into the cavity of the pelvis, and, from the extent of the suppuration, produce consumption and death.‡ This happened to Cleghorn. These abscesses may also form in other situations, as in the neck, in the abdominal muscles; it is necessary to discharge them by an opening with the lancet, as otherwise, from the fasciæ which oppose the exit of the matter, it might produce death, from the matter getting admission into the thorax, pressing on the trachea, &c.

On Relapses.

To prevent relapses, change of air, going to sea, and, where this is not practicable, taking the bark every morning and evening, are the most effectual plans. If the mouth be bitter, the stomach sick, the appetite gone, and the head giddy, the forerunners of the attack, a purgative should be taken. If, notwithstanding these precautions, the fit should return, the evacuations should be more moderate than in the original attack, and after them the bark should be given.§ The disease sometime comes on in the form of diarrhœa. A purge or two, with the bark and salt of tartar with laudanum, will relieve it. The various combinations of medicine with the bark, precautions mentioned in the last and preceding chapters, should be attended to, and they will most probably succeed. For the confirmatory treatment under this head, see Convalescence and Prevention, at the end of this memoir.

* Cleghorn, p. 228.
† Ibid.
‡ Ibid. p. 229.
§ Ibid. p. 232.

Treatment of Malignant Intermittents.

The sulphate of quinine is the preparation best adapted to the treatment of these diseases. It is manageable in small quantities. When the system is much debilitated, evinced by the pulse and great prostration of strength, and the bowels are not in an irritable state, it had better be given in the paroxysm, but if it be necessary, from the doubtful state of the fever, it may be postponed till the fever begin to abate. It should be given as soon as possible, from the insidious nature and sudden recurrence of these diseases, and administered in large doses frequently repeated, otherwise the paroxysm will return, and the patient probably be carried off. Three or four grains of the sulphate of quinine, where death is expected in the second paroxysm, should be given every two hours, commencing as early as possible and continuing till the ordinary period of the return of the fit. The dose may be increased, and this may be necessary, as its efficacy has been believed to depend on the quantity. During this time, the bowels should be kept open, and it will be found that calomel and jalap, or aloes, rhubarb, &c. in repeated doses, till they bring away dark-coloured stools, according to the plan of Dr. Cooke, had better be tried, particularly where affections of the head or breast are combined, as also in those of the joints and limbs. When the stomach and intestines are the seat of the disease, purgatives will be improper, unless the system be excessively febrile and plethoric; diarrhœa must be restrained or encouraged according to this indication: in debilitated habits it might produce death, to increase this symptom. Virginia snake root united with the bark are recommended by Senac, where there is great debility, and the extremities are cold, with great prostration of the powers of the system. Other stimulants, as volatile alkali, mustard poultices, may be used to remove the debility. Bloodletting is useful in the apoplectic, delirious, and comatose states of the system, as also in the rheumatic variety. It should be drawn as near as possible to the parts affected. Blisters also are recommended under the same circumstances. Preparatory measures must be dispensed with, when the fit is excessively violent; the bark in these cases must be administered at once, and in large doses. By the prudent use of depleting remedies, the most violent intermittents are often rendered mild; it must, however, be recollected, that these diseases are insidious and deceitful, and that it is necessary

to watch them with the greatest care: the preparatory means therefore had better be used at the same time with the sulphate of quinine; the local pains and other affections will show how these are to be treated. After the paroxysms are suppressed, the best plan is to continue the bark for some time, to prevent a relapse. For this purpose a dram may be given thrice a day, or several grains of the sulphate of quinine repeated as often: it should be continued for eight or ten days, and then omitted for three days and resumed again. It has been said by the celebrated Werlhoff,* that these diseases generally return in three or four weeks; as we believe this to be uncertain, it is however necessary to be prepared: the above plan will obviate every difficulty. If the relapse should be obstinate, then some of the means mentioned above may be adopted. Alibert mentions the union of scorbutic symptoms with these diseases in Holland: they were relieved by the sulphuric acid. The vegetable acids were not sufficiently powerful. Worms also was united with it among the poor. He proposes as a remedy, the helminthocorton, a sea weed much celebrated in France for this purpose: the semen santonicum, as it has been also recommended for intermittents, will perhaps be better. As the common oil of the shops is an adulteration, and is certainly not that of the semen santonicum, it cannot be used for this purpose.

On the Convalescence.

The patient should be removed to a pure air and a dry situation. During the convalescence, when the patient is taking the bark, bleeding may be indicated by heat of skin, thirst, dryness of the mouth; also, purges may be necessary if the patient be costive, have fur on the tongue, and yellowness of the eyes. Under these circumstances, these depleting measures will prevent the return of the fever and confirm the convalescence. Rhubarb will be found to be valuable for this purpose, from its tonic power. The diet proper in this stage, where the disease has been violent, and the patient much weakened, must be guarded with great care; it should be nutritive and easy of digestion, and not too stimulating. As most patients will not be restricted to that regimen which is most proper for them, a choice of that which will be taken becomes necessary. The following remarks are therefore given, as proper for this stage.

* Alibert, p. 247.

The power of the various organs increases by use, and becomes weaker by inattention and neglect. Digestion obeys this general law. The stomach not only digests better that kind of food, to which is most accustomed, but also acquires by habit a greater variety of power. The epicure assimilates food which makes the man of plainer habits sick. The Irish eat oaten bread, and the inhabitants of some parts of Scotland require, as one of the necessaries of life, a bread made of pulse, neither of which an American could relish, and with difficulty assimilate. It is then to the acquired habits of the patient, as well as to the natural powers of the organs of digestion, attention must be paid, in selecting articles of diet.

Farinaceous substances are supposed to be the most easy of digestion. They form a part of the nourishment of almost all nations. Acquired habits then, as well as the natural instincts of the digestive system, lead to their use. The farinaceous matter of potatoes, yams, is less digestible than wheat and rye. Rice contains more nutritive matter than the other gramina, in an equal bulk. Wheat has about the same quantity. Rye and barley have been supposed to be less digestible, and the bread of oats and maize to be more stimulating; they therefore suit phlegmatic habits. The choice of these articles must depend much upon the individual. By the inhabitants of the south in this country, where the use of maize is more common, that substance should be preferred. Wheat and rye will for the same reason be chosen by patients from the middle states, as a natural and appropriate diet.

The bread formed of these substances is digestible generally in proportion as it is well masticated. Experiments have proved, that food which is well divided is dissolved in four hours, whereas if it be swallowed whole its solution does not take place for 18 hours. The preparation of these articles of diet by baking produces some important changes. If the bread be hard, as when it is unleavened; if it be not sufficiently baked, it is with difficulty soluble in the juices of stomach, and therefore improper to be administered during the debility of the digestive organs, whether produced by fever or any other cause. A good method therefore of preparing these various articles of food is to boil them in water till their substance is quite dissolved; in this form they are easily acted upon by the stomach.

Panada, made by boiling bread in water, till it becomes quite soft; barley prepared in the same way and mixed to-

wards the end of the process, with grapes, figs, oranges, peaches, apricots, or other digestible fruits, form proper articles of nourishment, and are particularly applicable to those cases where the bowels are costive and headach and languor are troublesome; sago, arrow root, tapioca, may also be used.

Oily and fatty substances are not proper, because they cloy the stomach when used alone, and are too laxative; united with farinaceous substances, they are still objectionable: the fat of young animals, if the patient insists upon taking food of this description, is more digestible than that of those which are older.

The flesh of older animals is more proper for broths; that of the young renders this species of diet glutinous and disagreeable. Soup of all kinds is indigestible, and had better not be used. The flesh of the common fowl, the pheasant, the partridge, and the turkey, may be taken. Fishes whose flesh is white are permitted, though they are rather indigestible. Of this kind of food, some are too firm to be easily dissolved in the gastric juice, others form when boiled a solution resembling jelly, and are both to be rejected as difficult of digestion.

Shell fish are to be avoided for the same reason; milk, if the stomach in ordinary health digest it easily, is admissible; and with regard to the mode of preparing animal food, it may be observed that broiling is most eligible, as it preserves its flavour. The latter is peculiarly so, when the article to be prepared is thin farinaceous food; and when meat is proper from absence from fever, beef and mutton are the best articles of diet. On this subject the next chapter treats more fully.

The Prevention of Intermittent and Remittent Fevers.

This is in general more difficult than their cure. Low and moist situations, exposure to the evening, night, and morning air, and to winds blowing from the ocean, wet clothes, and wet feet should be avoided; large towns, high, dry, and airy situations, as the highest rooms of houses, fronting the rising and meridian sun, warm clothing, stimulating diet with spices, are recommended by Lind as proper preservatives. An infusion of garlic, bark, and rhubarb, in brandy, or a dose of bark with wine and some nourishment, taken in the morning before exposure to the air, will be found to be useful, particularly to men employed in digging or working in the earth.

The bowels should be kept gently open by some stimulating cathartic, as aloes or rhubarb. A wine-glass full of the infusion of the bark with orange peel in water, or a table-spoonful of its tincture, diluted with water, is a good tonic.* The cold bath also should be used as often as the weather will permit.† Sometimes, however, cold bathing debilitates. Huxham relates the case of a gentleman, who used a great deal of exercise, and also the cold bath very frequently and even in cold weather: in consequence, he became weak and low spirited; a fluid and nourishing diet and omission of the bath cured him, and recovered his flesh and strength. It is, however, generally a valuable remedy. The virtues and wonderful cures performed by certain springs, which were in former times consecrated by the priests, were no doubt entirely derived from their temperature.‡ The effect of the bath will be heightened by rubbing the surface with coarse cloths, and the free and liberal use of soap to remove all impurities from the skin. In fact, in order to avoid these diseases, it is necessary to increase the strength as much as possible; and as the ancients, as well as the moderns, have given certain rules on this subject, the result of observations made in training for gymnastic exercises, it will be proper to attend to them. Indeed, so important were they regarded by the Romans, that Asclepiades boasted that he would never suffer from sickness, nor die but of old age:§ he accordingly lived for upwards of a century, and at last was killed by a fall down stairs. These rules for improving the strength are resolved into the following principles or processes. 1. Evacuations, by which the stomach and intestines are cleansed. 2. Diaphoretics, by which the fat, &c. is decreased. 3. The exercise, which increases the strength; and, 4. The regimen, by which it is supported. To fulfil these intentions, the patient should first evacuate the stomach and bowels, by taking oz. i. or oz. iss. of Glauber's salt every fourth day, for three doses. This part of the plan should be dispensed with, after intermittents, as it will produce relapses, by debilitating too much; the bowels should be kept merely open. He then commences taking gentle exercise, which at last should amount to from 20 to 24 miles a day; beginning at five o'clock in the morning and going to bed at eight in the evening: for this, any common light labouring work would be a good substitute. Farmers would be at no loss to supply this defect. The diet re-

* Lind on Agues, p. 212–13. † Ibid.
‡ Huxham, p. 30. § Sketches of Modern, &c. vol. iv. p. 21.

commended is animal alone and bread; the lean of fat beef cooked in steaks, with very little salt, and rather underdone. Mutton and fowls are also proper: they should be broiled rather than roasted; and fresh meat should always be preferred to that which is salted. Biscuit and stale bread are the only vegetable matter which is allowed. Veal and lamb are improper, and any flatulent article of diet: all fat and greasy substances are also prohibited, as also pork, because they are too laxative, and the two former injure the digestion. Vegetables, as carrots, turnips, potatoes, are not allowed; fish, also, are improper; neither butter nor cheese is permitted, because they are indigestible. Eggs (excepting the yolk, which is taken raw in the morning) are also forbidden. Salt, spiceries, except vinegar, are prohibited.

Home-brewed beer, old and not bottled, is the best: red wine is permitted to those who are not fond of malt liquors, but never more than half a pint after dinner: the quantity of beer permitted is three pints, because if more be taken it swells the abdomen, and impedes respiration. Water is never taken alone, and ardent spirits are forbidden. Broth and soups are prohibited, because they are indigestible, excepting in the form of beef tea, which is taken to promote the operation of the medicine. Gruel and broth are used for the same purpose; but in the intervening days the animal and bread diet is resumed. Emetics are sometimes ordered if there be any sickness at the stomach: and the quantity of food is regulated entirely by the appetite. The diaphoretics are intended to lessen the fat, in order that the muscles may play more freely, and not be so liable to fatigue: they are carried to the extent of three or four perspirations, by which all the superfluous parts of the body are removed. These, however, are objectionable, as they may reproduce the ague. The plan is thus to be altered in any particular, which may be found not to agree with the system. The mind must be kept perfectly easy, and free from all irritation or trouble.* Sir John Sinclair observes of this plan, that it improves the faculties of the mind as well as those of the body, assists the digestion, &c. It renders persons who pursue it totally insensible to the changes of the air; they take no colds, and are not affected by slight irregularities as formerly. By a diet and exercise thus properly regulated, the patient may raise his system to the highest degree of strength, and avoid causes of disease which would otherwise destroy him. The poor in

* See Sketches of Modern, &c. from which the above is copied, p. 15, 16.

some countries approach in their mode of life to these directions; labour in the open air, temperance, from poverty, and the use of a few articles of plain food, winds up their strength to the highest pitch, and renders them insensible to the causes of disease. The plan founded upon these general principles, therefore, is useful in all climates: the recurrence of the fever in an intermittent or irregular form, by adopting it, will be prevented, and, if the disease is chronic, it will be assisted in its cure, provided no visceral obstructions, heat of skin, &c. and other symptoms of fever, be present.

The above plan, as a means of preventing fevers, is recommended by the fact, that it prevents pleurisies, rheumatisms, catarrhs, and the usual effects of exposure; and by the circumstance that debauchery, errors in diet, fatigue, the use of heating substances, as spices, excess of passion, long continued watching, improper food, great evacuations, sudden and great exertions, which are the most frequent pre-disposing causes, are most effectually avoided by this plan, and, by thus reducing it to a system, its benefits are best secured. But as the inhabitants of northern latitudes often visit southern countries, and as our own summers render us subject to disease from the sudden change from the temperature of our winters, and as the air of every climate becomes sometimes highly miasmatic, a few words may be proper on the prevention of attacks of fever under these circumstances.

In a very impure air, the system will become affected under any regimen: the removal from the infected district is then first necessary. Dr. Rush considered that the diet should be accommodated to the greater or less degree of exposure to the miasmata, and to the greater or less degree of labour which is taken. Where the miasmata are very great in quantity, as in the infected district of cities where the yellow fever prevails, speedy removal of course is the first requisite, and that diet which prepares for the disease is best. It should be gently laxative, so as to keep the bowels open twice a day. Calomel will assist in this object, and it should be carried so far as to touch the mouth slightly: at the same time, the degree of purging should not be so great as to produce debility. The air of Batavia has been rendered harmless to the crew of a New-England vessel by a gentle purge of sulphur given every day.* The object is to deplete the system gently. Issues, setons, and perpetual blisters are also valuable. Exercise in these exposures in the open air, will be found use-

* Rush, p. 193, Vol. IV.

ful, inasmuch as it strengthens the system: it should of course be taken if possible after the dews have dispersed, and before they have fallen, and in the most healthy parts of the district, and before the heat of the day. Confinement early in the morning, in the evening, and at night, will be found necessary—these last directions apply only where removal is impossible. In very plethoric habits, it may be necessary to let blood; the loss of a few ounces of blood saved whole regiments just arrived from France, in the West Indies, and in 1741, in Virginia, it prevented the yellow fever in persons exposed to its remote cause.* Where the action of the miasmata is not so powerful as in ordinary summers in the United States, it is probable that the plan by diet, and avoiding exposure, will be found sufficient. Where the patient has not been accustomed to the climate, then even in healthy summers the second plan, by aperients, calomel, &c. will succeed.

Umbrellas to protect against the heat of the sun, when it is necessary to go out, confinement in the middle of the day as much as possible, the use of muslin shirts, and where the nights are chilly and days hot, those of flannel; plain digestible food in the morning for breakfast, meats with spices† in the middle of the day, with wine and water; avoiding late hours, debauchery, and excessive drinking; a temperate use of summer fruits—are said to prevent diseases in hot climates, and relapses in those who have already been attacked. The use of the cold bath in summer, in tropical latitudes particularly, is found to be a valuable tonic, and may greatly assist in the prevention of these diseases.‡

(*To be continued.*)

ART. IX. *Case of Gun Shot Wound, in which Tetanus was controlled by the Caustic Issue applied to the Spine.* Communicated by DAVID MEREDITH REESE, M. D. of Baltimore.

ON the 17th of January, 1825, Henry Jinks, æt. 15, received a load of buck shot in his back, two of which entered the

* Rush, Vol. IV. p. 195.

† These are recommended by Lind as essentially necessary in hot climates. A sufficient quantity of exercise, we should think a better security for health, for which this stimulating food is a substitute.

‡ Johnson on Tropical Climates.

spine, and from the total paralysis and other symptoms which followed, must have passed into, or pressed upon, the spinal marrow. When I saw him, he had been carried home, a distance of about five hundred yards, and was lying in a chill so violent as to be somewhat threatening. By the appropriate means, the natural warmth of the body was restored, and an examination made of the state of the wounds. Several shot were removed; but two were distinctly traced to the bodies of the dorsal vertebræ, near the attachment of the seventh and eighth ribs. He complained of violent pain in the right hypochondriac region, and declared that his legs were gone. On raising his feet, it was plain that the inferior extremities were paralytic. Emollient applications having been made to the wounds before I arrived, their continuance was permitted until the next morning, by which time it became necessary to perform venesection, and empty the bladder by the catheter. This latter operation had to be repeated twice and sometimes thrice a day, in consequence of the great abdominal pain whenever any distention of the bladder was permitted to take place. I now attempted to open the bowels, for which purpose I at first used calomel and gamboge combined, accompanied by enemata of the most stimulating description. Having varied the cathartics until I convinced myself that nothing could be expected from those in common use, since no evacuation from the bowels had been effected during the six days after the accident, and finding no mitigation of the paralysis, I asked for an additional surgeon, when Professor Pattison was invited in consultation. He approved of the efforts to evacuate the bowels, and directed a continuance of the oil of croton, which had been liberally used before, a drop having been given every two hours, without effect. Finding, on our visit the next day, that all the efforts were still unavailing, and spasmodic symptoms having come on, we determined upon the use of the elaterium—a grain of the common extract of the shops was prescribed every two hours. By this means, a partial evacuation was obtained; but the following night our patient was seized with *tetanus* in the horrid form of opisthotonos, which threatened an immediate termination to our hopes and his life together. The tincture of opium was now administered in drachm doses every half hour during the night, and the following morning, being the eighth day after the accident, it was determined upon consultation, that in addition to the opium, we should try the effect of the extensive application of the potass put to the whole length of the spine, this practice having been recommended in similar cases. At

the suggestion of Professor Pattison, the prussic acid was obtained and given in doses of half a drop every hour. At the time this practice was commenced, I confess I entertained little hopes of a favourable result. Our patient's body was contracted posteriorly, to an absolute semicircle—his feet distorted, the toes being drawn inward to an almost incredible extent, and at the same time he was suffering most exquisitely from convulsive contractions of the limbs, which extorted from him shrieks of the most appalling and distressing kind. And yet in four hours after this treatment was commenced by the application of the caustic issue to the spine, all the symptoms were mitigated, he fell into a placid sleep, from which he awoke in six hours, more perfectly free from all the tetanic symptoms, relieved from all pain, the bowels free, and nothing remaining to discourage us but the palsy of the lower extremities; and even in this respect, there was an improvement, since he could feel the slightest touch to the feet, although he had no power to move them, proving that the nerves of sensation and those of volition have a different origin. This rapid improvement, and the subsequent favourable termination of this case, has induced me to give this brief abstract of the treatment to the public, with a hope that it may induce a further trial of its effects in tetanus, since it teaches us not to abandon a patient in this disease, however hopeless be its aspect, this boy having so far recovered as to walk with the assistance of a stick, and having every reasonable prospect of an entire restoration to his health.

After the introduction of the catheter, at stated intervals, for the first three days after the accident, an erysipelatous inflammation attacked the prepuce, which rendered the operation for phymosis necessary, before the catheter could be passed. And as the repetition of its use became so frequent and irksome, I concluded to suffer the catheter to remain in the urethra, so that the urine could pass off without my presence. This having been done for twenty-four hours, and being found to excite some pain, I withdrew it, and to my great gratification found that it was no longer necessary, since although the paralysis continued, yet by pressing upon the hypogastrium with his hands, he could at any time empty the bladder, the catheter having so dilated the urethra as to remove all obstruction. I was at first apprehensive I had done injury by this dilation, and that permanent incontinence of urine would result; but I find no such evil has happened, but on the contrary, he had obtained perfect control over the bladder, even before the muscles of the legs had obeyed his will.

If you think the facts in this case worthy of your notice, they are very much at your service and that of the profession.

ART. X.—*A Remarkable Case of Empyema, which pointed into the Œsophagus a little above its Entrance into the Stomach.* By DAVID M. REESE, M. D. of Baltimore.

ON the twenty-first day of July, 1823, I was requested to visit a lady, wife of a Mr. Z. of this city, whom I found labouring under extreme debility from a protracted affection which had been treated for dyspepsia, originating, as it was supposed, from chronic hepatitis. On an examination of the symptoms as they now presented themselves, and on a review of the circumstances attending the former management of the case, I gave it as my opinion that an abscess existed, probably in the liver, and from the rigors, night sweats, and other evidences of hectic fever, I thought it probable that the abscess must be considerably advanced, and possibly about to break. Fearing the effect which might be produced on the system already so debilitated, by the shock which the body would necessarily receive from the opening of the abscess, even should the pus be discharged into the intestines, I commenced the tonic plan of treatment, which I continued until the twenty-ninth of the same month, being eight days, with manifest improvement in the appetite and strength, when on the night of the twenty-ninth, a sudden discharge of pus, to the amount of nearly two quarts, sursum et deorsum, excited much alarm from the syncope it induced; and the great reduction of the pulse, and other symptoms, required, in addition to the use of internal stimuli, the application of an epispastic to the epigastrium, under the action of which she somewhat revived.

This blister was dressed with the unguentum hydrargyri fortius, which, in twelve hours, induced a gentle ptyalism, which was decidedly serviceable. The pus continued to be discharged through the bowels, mixed with the fœces, for four or five days; but the strength and spirits, before so prostrated, became much revived, and I entertained great hopes that the walls of the sac were about to adhere. Still, however, I conceived the abscess to have been in the liver, and in this

opinion I was confirmed by its having opened into the intestinal canal.

On the fifth day after this purulent evacuation, my patient was attacked with that species of inflammation in the left leg which has been denominated phlegmasia dolens, and this threatened to become very troublesome. It was treated in the usual way so far as her strength would permit, but continued painful and tumefied for three weeks, but all this time her strength and appetite continued to improve under the liberal use of wine, which I found indispensable from the time of the rupture of the abscess.

I then ordered that she should ride out in the cool of the evening and morning, hoping that, as her strength was restored, the affection of the leg would retire. This was practised, and subsequently I directed the cold bath twice a day, which was used for ten days successively, and the result of it was truly flattering. In this state of things, when my patient's appetite was good, the affection of the leg nearly subsided, and health so far restored that I conceived her as not requiring farther attention, except to avoid excess and exposure, I pronounced her convalescent, and left her in the care of her friends. In a day or two afterwards, however, she imprudently sat at her window at night when it began to rain, and did not leave the window until she felt a species of chill. The night following, I was called after midnight, and found her attacked with pneumonia of most acute character. The pain, cough, and difficulty of respiration, were so threatening as to require venesection, which, in her still feeble condition, I performed with a cautious and sparing hand. By the additional aid of epispastics and enemas, I succeeded in removing all the urgent symptoms before morning; but the great debility which followed could not be overcome. On the twenty-eighth of July, my friend Dr. Jennings was invited to visit her in consultation with me, which was the day after the depletion had been used for the removal of the pneumonic symptoms. We continued to unite our efforts to induce the system to rally, without effect. The pulse continued to range between one hundred and forty and one hundred and fifty in a minute, and on the thirty-first she sunk, after soliciting that her body might be opened after death. Accordingly, on the first day of August, I opened the body in presence of Dr. Jennings, who was kind enough to assist me in the dissection. On opening the abdomen, we discovered no appearance of an abscess having existed in or near the liver, although this viscus was much enlarged and discoloured. The rest of the

viscera (with the exception of the duodenum and pancreas, which were gangrenous) exhibited no morbid appearances. But on opening the stomach, we discovered that it contained pus similar to that which had been discharged on the 29th of June, thirty-two days before, which induced us to seek the abscess in the thorax, although we did not at first understand how it could thence have passed into the stomach and bowels. On opening the thorax, we perceived on the left side of the mediastinum, a collection of fœtid purulent matter, perhaps about a pint, precisely similar to that now in the stomach, and to that which passed off by the intestines on the 29th of June, when the abscess first opened. The left lung at its inferior point, showed marks of lesion of its substance, and chronic derangement. We were still at some loss to know how the pus escaped into the stomach, but on passing my finger up the œsophagus, I discovered the point at which it had opened into this canal about an inch and a half from the cardiac orifice of the stomach.

REVIEWS.

Quicquid venerit obviam, loquamur
Morosa sine cogitatione.

MARTIAL.

ART. XI. *Clinique Medicale, ou Choix d'Observations recueillies à la Clinique de M. Lerminier, Medécin de l'Hopital de la Charité, Membre Titulaire de l'Academie Royale de Medécine, &c. et publiée sous ses yeux par G. Andral Fils, Docteur en Medécine de la Faculté de Paris, Membre adjoint de l'Academie Royale de Medécine, Membre du Cercle Medical de Paris. Première Partie. Fièvres.*— A Paris. Chez Gabon et Compagnie, Libraires, Rue de l'Ecole-de-Medécine; et à Montpellier chez les mêmes Libraires. 1823. 8vo. pp. 512.*

This is undoubtedly a work of considerable merit, and is recommended to the profession by containing much useful information on a subject of great interest, and by no means the most easily understood in practical medicine. The "selection of cases" which it contains, are perhaps of the same stamp with other cases of fever, and present the usual varied characters of that disease, whether resulting from the influence of individual constitution, season of the year, complication, or even treatment. It is the manner in which these cases are arranged, and the mode in which the facts furnished by them are generalized by M. Andral, that form the peculiar and valuable characteristic of this work; and to these subjects we propose to direct the attention of our readers.

* From the Edinburgh Medical and Physical Journal, for January, 1825.

We learn from the preliminary discourse, that M. Lerminier, who holds the office of physician to the Hospital of La Charité, conceived the design of rendering his professional duties subservient to the preparation of a system of clinical medicine; and that he consigned to M. Andral the task of selecting cases and dissections, and illustrating them by suitable deductions and observations. The work thus projected will consist of several parts, each embracing a series of cases and researches, suited to illustrate the history and nature of those diseases which are most important and least understood, in the department of internal pathology, and altogether forming a complete system of clinical instruction. In the present volume, which is the first part only, M. Andral confines his researches to the subject of Fevers, continued and intermittent. He appears neither to follow the common division of the more early nosologists, nor that proposed by Pinel; but, equally disregarding both, seems to consider fever, whether continued, remittent, or intermittent,—bilious, mucous, adynamic, or ataxic, as at all times, and in all circumstances, the same morbid process, and differing only, so far as their pathological character is concerned, in the mildness or severity of their symptoms. The volume consists of two great divisions. The first contains cases, generally mild, to illustrate the phenomena and treatment, or cases of greater severity, with or without dissections, with observations and inferences on each, to illustrate the pathology of the disease, and constitutes the practical and clinical department of the volume. The second division consists of general conclusions from the facts recorded in the first, and presents a recapitulation of those results which the experience and observation of MM. Lerminier and Andral furnish. With the former of these divisions we propose to be very brief; and, after noticing one or two particulars which deserve to be selected from the general collection of facts, we shall pass immediately to the examination of those general results which are most deserving the attention of readers.

After a number of preliminary observations on the nosological character of fever, and the proposal of a series of questions on many doubtful points, which have been much discussed recently, regarding the presence of local affection, and its rank, as a cause or effect of fever, M. Andral, who must be regarded as the author, proceeds to enumerate the principal circumstances under which continued fevers appeared, and the prominent characters which they presented to the observation of M. Lerminier. Under the first head we find

the following table, to show the connexion of age, and the susceptibility to febrile commotion.

Of two hundred and twenty-nine patients admitted into the wards of La Charité during the year 1822, the numbers attacked at different ages, were as follow :

Age of the Patients.	15	16 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	59	64	65	71	75
Number of Patients.	1	67	99	29	10	4	7	0	7	1	1	1	1	1

It appears from this table, that the age from 20 to 25 years, and then from 16 to 20 years, are the two periods of life during which continued fevers occur most frequently. The average of the last quarter of 1821, had already given a similar result ; of thirty-four cases treated by M. Lerminier during the quarter, seven were from sixteen to twenty years, sixteen from twenty to twenty-four, six from twenty-four to thirty, two of thirty-one, one of forty-five, one of fifty-six, and one of sixty-nine. This difference in the frequency of fevers, according to the age of the individual, may be partly ascribed to a difference in the action of those causes, under the influence of which these diseases occur.

With regard to the nature of these fevers, we are informed that they presented most of the characters of the fevers termed inflammatory, bilious, or mucous, as they are indicated in the philosophic nosography of Pinel, and all the features of the gastro-enteric inflammation, on which Broussais has laid so much stress, with predominance of *gastritis*, *enteritis*, or of *colitis*.

The influence of remedies and of different modes of treatment has been examined with much care by M. Lerminier ; and the results show what degree of confidence should be placed in the separate effects of emetics, diluents, and cooling remedies, and copious blood-letting. In Parisian practice, the influence of example has been hitherto powerful. Some, in imitation of Maximilian Stoll, recommended emetics in every case ; others, after De Haen, condemned these medicines, and thought that the best treatment consisted in the administration of diluents and refrigerants ; and a third school, more modern, differ from both in depending for the speedy and easy cure of fever, on the use of copious blood-letting. These three modes of treatment were tried by M. Lerminier, as the assemblage of symptoms seemed to indicate ; and often, in order to appreciate the power of each, he employed them in individuals placed in the most similar cir-

cumstances possible. From September 1821 to January 1823, seventy-five patients, attacked with slight continued fevers, were treated with the most simple mucilaginous or acidulous drinks, forty-nine by emetics, and in some cases by purgatives, one hundred and three by blood-lettings general and local. Several of the individuals of the two last classes were treated alternately by blood-lettings and evacuations ; and from a series of fifty-three cases, illustrative of the effects of these several therapeutic measures, M. Andral draws the following conclusions :

1. Many of these cases manifest a spontaneous tendency to cure, whatever treatment is employed ; and in such the most opposite methods are equally successful.

2. It is impossible to give an exclusive preference to any one of the three methods. Each may be advantageous when it is properly employed.

3. The treatment by simple mucilaginous or acidulous drinks is in many cases sufficient, and is most expedient when no precise indication occurs. Profuse blood-lettings will then exhaust the patient, and render convalescence more tedious and more painful.

4. The symptoms which constitute simple gastric load, or even bilious fever, yield readily and rapidly to the administration of emetics. The symptoms which distinguish intestinal load yield equally to purgatives. After the use of these means, the headach disappears, the pulse becomes less frequent or even natural, the digestive functions return to their natural state, and looseness especially is checked after undergoing a temporary increase. Similar effects are obtained much more slowly by the use of simple diluent fluids, the same cases, so far as comparison could be made, not being improved in fifteen days, which, suitably evacuated, recovered their usual health in forty-eight hours. These effects are to be ascribed, according to our author, not only to the changes effected on the gastro-enteric mucous membrane, but also to the simultaneous and indirect influence exercised on the biliary and pancreatic secretions, the mechanical influence of vomiting on the circulation, the change in the state of the skin, and perhaps in the nervous system. The efficacy of this treatment, by acting on the gastro-enteric mucous surface, is demonstrated by the practice of Sydenham in the London epidemic of 1661, by that of Baglivi in the epidemic fevers which raged in the vicinity of Rome, by that of Tissot in the fever of Lausanne, and of Sarsone in the fevers of Naples in 1764.

5. When the tongue is red at its point, margins, or centre, when it is uniformly red and smooth, when it has a tendency to become dry, when the thirst is ardent, the pit of the stomach painful, blood-lettings shorten the duration of the disease, moderate accidental symptoms, and often prevent the occurrence of those which are severe.

6. Even when the preceding symptoms exist, the employment of emetics is in some instances not unsuccessful, whether they cause favourable vomiting, or dislodge irritation from the digestive passages. Thus an emetic suspends diarrhœa by irritating the stomach, or, in other instances, banishes the symptoms of gastritis, by acting chiefly on the bowels. In some cases in which the tongue may be bright red, without any other symptom of inflamed stomach, M. Lerminier ascribes it to a sort of afflux or congestion of blood in the upper parts, rather than to inflammation of the stomach. When an emetic, in such circumstances, deprives the tongue of its unnatural redness, removes the injection of the face and eyes, and dispels the headach and giddiness, he thinks its utility depends on a transient revulsion towards the stomach and intestines.

7. Derivative bleeding from the *anus* checks looseness more certainly and speedily than general blood-letting.

8. Ipecacuan is not more immediately astringent than tartarised antimony. It most commonly begins by increasing the number of stools at the same time that it excites vomiting. When the symptoms of gastric load are well marked, a small quantity of ipecacuan, six grains for instance, will produce abundant vomiting. M. Lerminier tried *emetine*, in the dose of half a grain, with the same general effects; one grain being equivalent to about ten grains of the powder of the root.

The general recapitulation to which we now proceed consists of three parts;—the first treating of the morbid changes observed by dissection in the dead subject (p. 253—420), the second of morbid phenomena occurring in the course of the disease, 420 to 464, and the third of the treatment, 465 to 494. It is chiefly to the first of these that our present attention is to be directed.

M. Andral commences this part of his subject with inquiries into the morbid changes which are found in the alimentary canal of persons cut off by fever; and as these partake more or less of the inflammatory character, he begins with considering the anatomical characters of inflammation of this tube.

The alimentary canal, when inflamed, if inspected from without, is generally contracted, and appears injected. Contraction may exist independent of inflammation, as is evinced in the case of the pyloric portion of the stomach, and sometimes the colon, which may be greatly narrowed, without trace of inflammation of their mucous or inner surface. The injected appearance seen without may be seated in the subserous cellular tissue only, more frequently in the submucous tissue; but it indicates, in no case, the condition of the mucous membrane, which may be inflamed, disorganized, or ulcerated in portions of bowel, which, externally, had been considered sound. The inner or mucous surface, therefore, of the intestine should be examined, to judge correctly of its state.

This surface may present considerable variety of aspects. Often a considerable tract may be of a uniform red colour, varying from vermillion to the deepest brown. In some instances this redness becomes gradually fainter, as is observed in the small intestine; in others it may terminate with an abrupt edge, as is seen in the union of the pyloric with the splenic end of the stomach, at that of the stomach and duodenum, and in the different shades of the upper and lower surface of the ileocaecal valve. The valves of the small intestine (*valvulæ conniventes*) are generally of a much deeper red than the intermediate spaces of intestine; but if they are unfolded, this colour, which depends on the mutual application of two folds of mucous membrane, disappears. In other instances we find red or brown patches, round or irregular in shape, in the intermediate spaces of which the surface of the intestine is almost white. These patches are to be regarded as spots of isolated or circumscribed inflammation. Instead of the uniform red tint, we may see numerous arborescent clusters, occasioned by complete injection of numerous anastomosing branches. These vessels are frequently surrounded by small red points, which appear to be caused sometimes by partial injection more lively, sometimes by slight circumscribed effusion of blood. Lastly, the inner surface of the bowel is sometimes occupied by pimples, pustules, or fungating growths of various shape and size.

To understand clearly the degree to which the mucous membrane may be injured by the process of inflammation, it is requisite to detach it from the subjacent tissues, and study its condition separately. If the stomach or any portion of the intestine of a living animal be cut open, not during the process of digestion, the mucous membrane is every where

white, or of a pale rose colour. Through its transparent tissue the subjacent laminar or cellular tissue may be seen. It is generally injected moderately only, more if the animal is much agitated, and makes violent efforts. During the process of chymification, the gastric mucous membrane assumes a red tinge, a little deep; as the chyme is conveyed into the small intestines, the mucous membrane in its turn becomes injected; and a similar tint is observed in those portions of the large intestine in which the fecal matters are accumulated. In several rabbits, for example, M. Andral found the mucous membrane of their capacious cæcum, which is at all times filled with excrementitial matters, of a sufficiently bright red.

The mucous membrane of the alimentary canal is thickest in the stomach, thinner in the small intestine, thinner still in the cæcum, and becomes a mere pellicle in the colon. Its consistence or tenacity observes the same ratio. In the stomach, it may be detached in large flakes, and pulled in various directions, without breaking;—in the large intestine it is torn by the slightest effort. Its adhesion to the subjacent tissue is inconsiderable in the stomach; in the duodenum it cannot be detached without difficulty; in the rest of the small guts it adheres more closely at the valvular folds than in the intermediate spaces; and through the whole tract of the colon the attachment is firm.

These circumstances, regarding the natural state of the gastro-enteric mucous membrane, will facilitate the examination of its morbid changes.

If the mucous membrane, in the first stage or commencement of inflammation, be removed and placed between the eye and the light, it appears traversed by numerous vascular nets, or it presents a uniform red tint, and intercepts completely the passage of the luminous rays. In place of the red colour, it often presents a brown tint, more or less deep. This peculiar shade does not depend on the duration of the process; it supervenes rapidly when the inflammation is vehement, and it then appears to announce the commencement of disorganization of the membrane. If corrosive sublimate, arsenic, acetate of copper, or any active corrosive poison, be conveyed into the stomach of an animal, the mucous membrane, in the course of an hour, will be of a cherry red colour in some points, and of a brownish grey in others, or brown all over. Orfila found the gastric mucous membrane of animals, who twenty-four hours before had swallowed euphorbium, of a very deep red brown. In the human subject, the membrane is of this colour, when it is also softened.

From these facts, M. Andral infers, that the brown colour of the inner surface of the stomach is an effect of inflammation, and that it may occur equally in those acute forms of the process which very quickly disorganize the tissue which they attack, as in those chronic forms which produce the same effect after a long period.

Thickening of the mucous membrane is another effect of its inflammation. It may be diffused or circumscribed. It is very distinct in chronic inflammation; and in some examples of chronic *diarrhœa*, the thickness of the colic membrane alone may exceed that of the four tissues taken together. Circumscribed patches of thickened membrane are rather common; they are round or oblong, raised above the level of the adjoining surface two or three lines; smooth rugous on the surface, varying in size from a ten sous to a five franc piece, with the surrounding membrane perfectly white and transparent. They are very rare in the stomach, more common in the large intestine, especially in the transverse arch, and still more frequent at the lower end of the ileum. Sometimes a single patch, greater or less, is seen; —in other cases they are numerous. In respect of their colour they are of two sorts, one red, apparently of recent formation, the other of a duller white than the rest of the membrane, apparently the result of a former disease, the other symptoms of which have disappeared. It is a mode of termination by hardening.

When it is much thickened, it retains, in most cases, its consistence, or even acquires greater density; in other instances, with its ordinary thickness, it is singularly softened. Pathological observations and experiments made on living animals demonstrate, that the mucous membrane of the alimentary canal may be softened in a very short time, whatever be the energy of the inflammatory process. Thus Brodie found, that half an hour after the injection of a few grains of corrosive sublimate into the stomach of a dog, its mucous tissue had undergone a remarkable softening. In this state the mucous tissue cannot be removed in its membranous form; it is semifluid, and the slightest scraping with the scalpel, or rubbing by the finger, reduces it to pulp, or reddish pap. Similar softening is sometimes observed in parts of the mucous surface, which are perfectly white, and perhaps are to be regarded as the effect of former inflammation. This peculiarity, it will afterwards be shown, is observed in the large intestine in cases of chronic looseness. Besides being thickened and softened, the gastro-enteric mucous

membrane sometimes presents red or brown conical growths, extremely soft, mutually pressed towards each other, and rising from four to five lines above the level of the adjoining surface. They are sufficiently similar to the fringes at the lower surface of the tongue, if these were divided into small longitudinal fragments; and, like them, they are moveable and floating. MM. Lerminier and Andral have observed these growths in the large intestine only, but Orfila found many similar in the stomach of a man who perished two months after swallowing some powder of cantharides.

The mucous surface is sometimes occupied, instead of these growths, with white conical elevations of half a line or a line high, as broad as a lentil at the base, and presenting at their depressed summits an exact resemblance with the pustules of small-pox. Rarely isolated, they are generally in clusters, like the confluent form of that eruption, with the intervening mucous membrane sometimes red, sometimes scarcely injected. Our authors have never met these pustules in the stomach; they have seen them in the two first portions of the duodenum only once, and thrice in the transverse arch of the colon; in the two lower fifths of the small intestine they are most frequent.

In the colon they have most frequently observed elevations of a different character. Conical as the former, and seated like them in the mucous membrane, their base is much broader, their elevation greater; they terminate in a pointed summit; they are of an intense cherry red, and the surrounding membrane is somewhat injected. They are of opinion, that the nature of these bodies is more easily understood by comparing them to the small tumours of the skin, known by the name of boils.

Inflammation of the gastro-enteric mucous membrane necessarily modifies its functions, and especially those which consist in the secretions incessantly going on at its surface. The intestinal mucus, instead of being viscid, ropy, and sufficiently consistent, becomes much more fluid like *serum*, or it acquires great plasticity, hardens, and is converted into false membrane. All authors mention such membranes, which in dysentery line the inner surface of the colon, and are discharged with the stools. The question of their organization, cohesion, and consequent obliteration of the calibre of the bowel, has not yet been sufficiently investigated. Our authors have seen such false membranes in the stomach and large intestines only. They found, for example, the whole inner surface of the pyloric portion of the stomach covered

with a firm greyish layer, simply applied, and coming off in flakes; and, in a girl of twelve, the inner surface of the stomach was occupied with many red patches, extending like broad bands from the *cardia* to the *pylorus*, each of which was covered by a greyish, buffy, membranous layer, the intermediate spots being very white and uncovered.

It is not uncommon to find inflamed portions of intestine covered by a reddish fluid, which appears to be a mixture of mucus and blood. The cæcum and end of the small intestine are the most frequent situations of this morbid secretion; and on some occasions it is found to involve packets of ascarides.

To show the great quantity of fluid secreted by the intestinal mucous surface when inflamed, our author refers to the example adduced by Morgagni,* of a woman who, in a single day, discharged by the anus forty pounds of limpid serosity. The debility occasioned by a loss so great may cause death in a very short time. The best and most forcible example, both of this fact and of its effect on the economy, is found in the phenomena of Indian cholera, and similar states of excessive secretion from the intestinal membrane. Another case, very much in point, is that related by Morgagni of himself, when travelling between Forli and Pesaro in the year 1733,—when he was suddenly seized with diarrhœa so profuse, that, in twelve hours, he discharged sixteen pints of serous fluid, which was almost limpid. The pain of the belly was slight; and the dejections, though very copious, were not frequent. Being somewhat squeamish, he thought of exciting vomiting; and upon ejecting a small greenish substance, which appeared to be the leaf of an herb, the sickness and diarrhœa were cured simultaneously.

The copious discharge of biliary fluid in certain states of inflamed intestine, has been remarked by many, and especially by Stoll, who, like others, regards the copious secretion of bile as the cause at least of increased motion. This opinion may not in all cases be without foundation; but the dissections of our authors demonstrate, that it is most commonly the effect of a previous change in the enteric mucous surface, and that the inflammation of this membrane induces a most abundant secretion of bile, which is necessarily discharged in this manner.

The submucous cellular tissue continues, in the majority of cases, quite unaffected under a mucous surface violently

* Epist. XXXI, 9.

inflamed and even disorganized. In some instances it is much injected; and in some it becomes like the arterial cellular tissue, extremely brittle, allowing the mucous membrane to be removed without tearing, to the extent of several inches. In some circumstances effused blood is found in its meshes, as Orfila found in animals poisoned by the acrid root of the spruce-laurel. Lastly, in many instances of chronic inflammation, the submucous cellular tissue becomes dense, hard, and, at the same time, of considerable thickness. Less frequently it is found soft and pulpy.

The muscular coat of the alimentary canal presents few alterations of structure. Our authors, however, have seen it much softened, and liable to be broken by the slightest effort. In the transverse arch, and in the descending colon, they found it of a scirrhous density and hardness, but the longitudinal and circular disposition of its fibres still perfectly distinct. Lastly, it is sometimes deep red.

But though the structure of the muscular tissue is rarely affected during inflammation of the mucous membrane, its contractile powers are frequently thrown into sympathetic action. This is readily demonstrated by direct experiment, by injecting any irritating substance into the canal, when the bowel hardens and contracts at the point at which the inner surface is in contact with the irritating agent. This contraction continues after death, as the observation of our authors proves. In general it is partial, and rarely occupies the whole extent of the tube. An interesting example of this, however, is recorded by M. Tartra, in his Dissertation on Poisoning by Nitric Acid. In an individual who died three months after swallowing this poison, the alimentary canal was reduced to so small volume, that it might have been held in the hollow of the hand. Its calibre, through its whole length, did not exceed that of a common quill.

Intus-susceptions, or invaginations, are considered by many authors to be connected with inflammation, either as cause or effect. Our authors affirm them to be more frequently without inflammation, and think it probable that many are formed only at the moment of death, when the peristaltic motion becomes much more active, as is evinced by experiments on living animals. They are more frequent in the ileum,—a circumstance which the free motion of that part of the canal enables us readily to comprehend. Fabricius Hildanus, and Bartholin, saw the cæcum received into the ileum; Hartmann, on the contrary, found the ileum inserted into the cæcum. They are very rare in the colon; yet Meckel states,

that he saw the transverse arch and descending portion received into the sigmoid flexure; and Bonetus has cited an instance of invagination of the rectum in the person of a man who died with obstinate constipation and fecal vomiting. "Are we to credit," says Andral, "the veracity of a German author, who says that he saw the duodenum invaginated into the common biliary duct?"

These unusual arrangements of the alimentary canal most commonly consist in the upper part of the bowel being inserted into the lower. They may be numerous, amounting to six or seven in the same subject; they vary in length from several inches to more than two feet; and the symptomatic effects which they cause vary according to their magnitude, their situation, their number, and the extent to which they obliterate the canal of the intestine.

The subserous cellular tissue is still more rarely affected than the submucous. Like the latter, it may become very brittle, or may acquire great thickness; in which case the peritoneum is parted from the muscular coat by a cellular layer two or three lines thick, which, in a state of health, is scarcely visible. The peritoneum itself remains in all cases untouched, though occasionally it becomes very brittle. In some cases our authors found all the intestinal tissues softened at once in the highest degree. The slightest force is then sufficient to destroy its walls, and mere friction reduces them to a pulp. This general softening is more common in the stomach than in any other part of the canal.

The alimentary canal, when inflamed, is liable to be destroyed in a greater or less extent; and whether its component particles be absorbed, or are carried outward with the contents of the bowel, ulcers, uniformly seated in the mucous membrane, primarily or secondarily inflamed, ensue. These ulcers may be formed at any spot of the canal, from the cardiac orifice to the anus; but they are not, in all places, equally frequent. They are rare enough, for example, in the stomach, and still more rare in the duodenum and jejunum; they are very common in the lower third of the small intestine; and they are again less frequent in the different parts of the great intestine. Some idea of their comparative frequency in the different regions of the canal, may be obtained from the following table, which presents the result of dissection of seventy-one persons, several of whom had ulceration of several parts at once of the alimentary canal.

Persons.			
In 10	there were ulcers of the		stomach.
1	—	—	duodenum.
9	—	—	jejunum.
38	—	—	lower part of ileum.
15	—	—	cæcum.
4	—	—	ascending colon.
11	—	—	transverse colon.
3	—	—	descending colon.
1	—	—	rectum.

They are generally numerous, unless in the stomach, where they rarely exceed one or two. In the upper part of the small intestine they are uniformly separated by wide intervals; in the lower part they are always much more approximated; and they often adjoin and coalesce near the ileo-cæcal valve, so as to form a single extensive ulcer. They are rarely confluent in the cæcum and the rest of the large intestine, in which the intervening spaces are in general more considerable than the space occupied by the ulcers.

These ulcers rise often in the middle of the circumscribed red patches already mentioned, the surrounding membrane continuing white, as it does round the patches. It is important to remark this disposition; for the perfect whiteness which surrounds many intestinal ulcers, has led to the admission that they might originate in the mucous membrane without previous inflammation. In this instance, it is evident they are the effect of a circumscribed form of this process.

Ulcers may also be the consequence of the pimples and pustules with which the mucous membrane is occasionally covered. When these eruptions indeed are examined with attention, the summit of some presents a slight erosion, in others it has undergone considerable loss of substance; the minute sore which is thus formed extends progressively from the summit to the base of the pustule, and terminates in its entire destruction. Is there any analogy between the formation of these ulcers, and that of those which result in the mucous membrane of the mouth, from the minute vesicles or pustules of Thrush?

Lastly, ulcers may be the consequence of eschars dropping off from the mucous membrane.

Several authors have ascribed the commencement of intestinal ulcers to inflammation of the mucous follicles. This opinion is rendered plausible by the great vital energy of these bodies, their vascularity, and the extraordinary secre-

tion of which they are the seat when the membrane is inflamed; but it is not supported by the evidence of any positive fact. The frequency of ulceration in the lower part of the small intestine is indeed proportioned to the great number of follicles; but they are also very numerous, much larger, and more apparent in the duodenum than elsewhere; and yet this is the region of the canal in which ulcerations appear most rarely.

It is impossible to come to any fixed conclusion on the period at which inflammation of the mucous membrane may terminate in ulceration. It often happens that no trace of breach of continuity can be seen in it, though it has been for some time the seat of an inflammatory process of considerable intensity. The facility and rapidity with which the ulcerative process takes place, appear to depend on inexplicable individual dispositions,—a fact which receives confirmation from what is observed in the bodies of animals of the same age and strength, which have been poisoned by an equal dose of corrosive sublimate. At the end of forty-eight hours, the gastric membrane is in some merely of a bright red colour; in others it presents several patches of ulceration. The same principle is perhaps to be employed in explaining those cases of rapid or sudden dissolution in which ulcers are found in the stomach. M. Andral refers to Morgagni for an instance in which a person in good health was suddenly seized with atrocious pains of the epigastric region, and with all the symptoms of inflammation of the stomach, and expired at the end of twenty-four hours;—ulcerations were found in the stomach.

The size of intestinal ulcerations is very variable. Some are so minute as scarcely to admit the head of a common-sized pin; others are of several inches diameter in every direction; and some occupy the whole circumference of a fold of intestine. Our authors found the mucous membrane entirely removed to the extent of more than six finger-breadths above the cæcum; and in this part of the ileum, and in the stomach, they have met the largest patches of ulceration.

In shape they appear to observe nothing regular or invariable; some are oblong in various directions, others circular, and others are linear, or mere furrows.

Their edges are always formed by the mucous membrane. They may be red, thick, raised from two to three lines above the bottom of the sore,—or white, thin, and on the same level. They are often irregularly cut down, and present numerous fringes which advance from the circumference to the centre

of the sore. The surrounding mucous membrane is often detached to a considerable extent; and if the sores are numerous and very near each other, the intermediate mucous membrane may be entirely, or almost entirely, detached from the subjacent tissue. This detachment, arising from alteration of the cellular tissue, is similar to that which takes place round many cutaneous ulcers.

The bottom or surface of the sore varies according to the period at which it is inspected. If the breach of continuity is recent, the laminar tissue which forms the bottom is thin and white, as in the natural state, and may preserve this appearance for a longer or shorter period; but when the ulcerative process has continued for some time, it acquires considerable thickness, which is felt distinctly by touching the outer surface of the intestine; it becomes rugous, unequal, granular, grey, red, or brown, and secretes a fluid of these several shades, which sometimes hardens into a false membrane, and covers the ulcerated surface with a layer more or less thick. In some instances this crust is perfectly black, and appears to be converted into a true eschar. In other instances the laminar tissue undergoes an insensible destruction like parts attacked with that form of inflammation which Hunter termed *ulcerative*, and the bottom of the sore is then formed by the muscular membrane. This may either retain its natural aspect, or may become very red, soft, and black, and, destroyed in its turn, exposes the peritoneal membrane. The bottom of the extensive patches of ulceration at the end of the small intestine, or on the cæcum, frequently present at the same time these several tunics exposed in different points of their extent. In some cases it is possible to trace with the eye the successive destruction of coats from the inner or mucous to the outer or peritoneal surface of the bowel, and from the centre to the circumference of the ulcerated patch. The edges of the ulcer, in such circumstances, present several degrees or steps. The first, most remote from the centre, is formed by the mucous membrane, thin, or thickened, red or white; the second, more internal, is formed by the laminar tissue; the third, still nearer the centre, is occasioned by the fleshy or muscular tissue; and lastly, in the bottom, may be seen the thin, transparent, peritoneal membrane,—which in its turn may undergo alterations, becoming more fragile and at length giving way, when perforation of the bowel is the result.

Such is the successive progress which ulcers pursue, that extend in depth; but more frequently, their sole and chief

tendency is to spread superficially to the destruction of the mucous membrane only; and in the majority of cases, the bottom or surface of the sore is formed by the laminar or cellular tissue.

As intestinal ulcers may be quickly formed, so they may increase in depth with frightful rapidity. This occurs chiefly in cases of poisoning, in which, at the end of a very short time, the bowels may be perforated. In all such cases, the process of perforation proceeds from within outwards. In other instances it follows an opposite course. When tubercles, for example, arise in the peritoneum, their softening process necessarily destroys that membrane, and exposes the muscular, which in its turn is destroyed, and the bottom of the ulcer is formed by the mucous membrane, which eventually gives way, and perforation is the consequence.

Intestinal perforations may also occur without previous ulceration, in cases in which all the tunics of the intestine are equally softened. The slightest pressure of solid fluid or gaseous bodies is then sufficient to effect rupture or laceration. It is not ascertained whether this result can occur from mere mechanical distention, independent of ulceration or softening. It is known to occur in the stomachs or bowels of herbivorous animals; and Frank quotes facts which appear to demonstrate, that similar rupture may occur in the human subject by accumulation of gas in a circumscribed portion of the bowels. In the same manner, Stoll relates a case of rupture of the bladder, in consequence of unusual distention, by an excessive quantity of urine.

Lastly, Our authors propose, as a subject for inquiry, whether intestinal worms may not in some instances cause perforation, or whether, in the cases in which these animals have been found in the peritoneal cavity, they do not escape through a perforation already made; and to show the possibility of the former, quote the authority of Wepfer, who, in his Treatise on the Water Hemlock, relates, that in dissecting dogs he found in their bowels *lumbrici*, several of which were still living and adhering firmly to the intestine by one extremity like a leech.

But whatever be the circumstances, mechanical or vital, M. Andral continues, under which the intestine has been perforated, its cavity communicates, in consequence of this lesion, either with the outer surface of the body, or with some internal organ, or with the peritoneal cavity.

Of the first mode of communication, or that known under the name of *artificial anus*, the examples are numerous. The

edges of the intestinal perforation are united by adhesion to the abdominal *parietes*, and effusion into the peritoneum is prevented. In this manner a ball may penetrate the belly and be voided by stool without proving fatal, and a knife has been swallowed and discharged after some weeks by abscess at the epigastric region, without destroying the individual. Under this head M. Andral has related a good case of abscess of the cæcum, proceeding by gradual steps through the internal iliac muscle, and the muscular walls of the belly to the surface, by the process of progressive absorption, as described by Hunter.

In the second form of communication, in which the cavity of the canal communicates with another organ, the process is likewise accomplished by means of adhesions; and the affected bowel may either open into another hollow organ; or a dense solid body as the spleen, liver, or pancreas, may form a sort of wall to the intestine, and limit the extent of the ulcerative process; or lastly, it may open into the cavity of the chest, by destroying the diaphragm and pleura.

In the third mode of communication, that by opening into the peritoneum, one uniform result follows,—that of peritoneal inflammation, generally very acute, in consequence of the mechanical irritation of the effused contents of the perforated bowel. In some patients the exact moment of this effusion is announced by a peculiar sensation, quickly succeeded by atrocious pains, irregular, very rapid pulse, deadly sinking, and contraction of the features, and every mark of approaching dissolution. The immediate appearance of these mortal symptoms, in persons who some minutes before appeared to enjoy perfect health, proves the astonishing rapidity with which ulcerative inflammation may rise and extend, and with which inflammation of the stomach and bowels, however slight, may all at once become mortal.

When perforation of the intestines occurs in an individual struck with adynamic fever, with loss of strength, and remarkable diminution of general sensibility, it is not in all cases easy to distinguish the peritoneal inflammation which succeeds. In cases of this description, as might be expected, the patients testify no pain, though the belly is strongly presssd, either before or laterally. The sudden alteration of the features, unusual tension of the belly, and the change of pulse, which becomes all at once small and wiry, are the only marks which can lead us to suspect the accident, and its consequent inflammation. These acute forms of peritonitis without pain, succeeding perforation of the bowels in cases of fever, had already been remarked by Morgagni.

To show that the peritoneal inflammation caused by effusion of the intestinal contents may observe a chronic form, M. Andral relates a case, of which the following short outline conveys the principal characters. A young man, labouring under pulmonary consumption, and being subject to chronic diarrhœa, was all at once attacked with acute pains round the navel, aggravated by pressure. After they had continued eight or ten days without any remarkable change, the patient suddenly felt his belly wet with a considerable quantity of fluid, which inspection showed to proced from a linear opening or fissure at the navel; and in the course of the same day, a lumbricoid *ascaris*, with yellow fluid, similar to that contained in the ileum, escaped. Twenty-seven days after the appearance of the first pains, and eighteen days after the formation of the fistula, death took place, and disclosed traces of dreadful peritoneal inflammation. The intestinal group was united into a single mass by very thick, black, false membranes. A greenish fluid, not abundant, was effused between the intestinal folds, and was kept there by membranous bands, which formed the *parietes* of a multitude of partial sacs. There was no adhesion at the umbilical region. Two lumbricoid *ascarides* found in the peritoneum showed that perforation had taken place; but the adhesions were so numerous and so intimate that it could not be discovered.

Inflammation of the intestines may terminate, as in other tissues, in suppuration and gangrene.

Suppuration commonly takes place at the free surface of the mucous membrane; in some rarer cases, purulent matter forms below this, in the meshes of the laminar tissue, is collected in quantities, and constitutes a submucous abscess, similar to those which are frequently formed in the tonsils. These purulent collections are extremely rare in the subdiaphragmatic portion of the alimentary canal. Our authors have met with one example in the submucous tissue of the duodenum, and resting on its muscular layer; and another, much more extensive, in the stomach of a woman who died of organic disease of the liver and of the ovaries; and though this person had no apetite, it is remarkable that her tongue was natural, and she never complained the whole duration of her abode in the hospital, either of epigastric pain, or of vomiting. In several instances also, they have remarked, in the lower fourth of the ileum, below the inflamed mucous membrane, small white spots of the size of a lentil, formed by a pearl-white fluid, changing place and spreading superficially when the intestine is pressed. This was purulent matter deposited

in the meshes of the submucous cellular tissue, and tending to form numerous minute abscesses in all the points where the inflammation had been greatest, and the cellular tissue most distensible. Our authors have seen no example of abscesses said to be formed in the stomach, and discharged by vomiting.

Gangrene of the bowels justly appears to M. Andral much less common than has been long imagined. Of the instances of this lesion, mentioned in various authors, no particular description is given; but it is probable that the brown colour and softening of the mucous tissue, have in general been regarded, in superficial inspection, as proofs of gangrene, when they were, in point of fact, to be regarded as proofs of mere inflammation. It must not be denied, however, that there are diseases in which it is not rare to find, on the inner surface of the intestinal canal, true eschars, like those of the skin; these diseases are, according to our authors, adynamic fevers. In some instances, these eschars are formed from the laminar tissue, which forms the bottom of the ulcers; and it is then thickened, black, as if it had been charred,—or of a dirty greyish colour, and of a putrid consistence, such as is remarked at the surface of wounds affected with hospital gangrene. In other instances, gangrene is the direct consequence of inflammation of the mucous membrane, and the eschar which results, when thrown off, is followed by a sore. According to the observation of our authors, gangrene appears to be most frequently developed in the centre of the circumscribed raised patches already mentioned. In some instances, they have been able to trace the formation of the eschars in their different aspects, or stages rather, in the same subject. They observed, for example, about the end of the small intestine, oblong reddish-brown elevations, formed by thickened mucous membrane; in other parts, some of these elevations converted into a dark substance of yellowish-brown colour, which could not be removed by repeated washing and continued maceration,—compared by many to the eschars formed on blistered surfaces; and in other parts, the mortified slough, already partly detached by insolated spots of ulceration, the bottom of which was sometimes white, sometimes brownish-red, according as inflammation had spread to the cellular tissue of which it consisted. In other patches, the eschar, entirely detached in a single piece, was retained, at one margin, by a thin pedicle or neck only. Lastly, in others no trace of gangrenous eschar could be seen. The end of the ileum and the cæcum are the most common situ-

ation of these eschars; and, in almost all the instances in which they have been met with, their formation appears to coincide with the mortification of blisters on the skin of the individual. Once only have our authors seen an eschar of this kind in the stomach.

This view of the anatomical characters of inflammation of the alimentary canal, appears to M. Andral to furnish grounds for establishing three degrees of intestinal inflammation, in the same manner as Laennec distinguished inflammation of the pulmonic substance into three several stages. According to the views of our author, the first degree consists in injection more or less perfect and considerable, of the mucous membrane; the second degree is distinguished by alteration of tissue, thickening, softening, or eruptive inflammation, and may or may not extend to the other tissues; in the third degree, the intestinal mucous membrane and the subjacent tissues are disorganized, and affected with ulceration. The two latter degrees of intestinal inflammation may be easily distinguished by their proper characters, which are unequivocal and obvious; the first degree is liable to be confounded with that mechanical injection which takes place during the last moments of life, and continues some time after respiration has ceased, in consequence of the difficulty which the venous blood encounters in returning to the right cavities of the heart, and its accumulation and stagnation in the large veins. The observations of our authors to enable the pathologist to make a distinction, are too long to be noticed at length; from comparing them with the result of our experience, we should say shortly, that the most certain way of distinguishing inflammation of the intestinal mucous membrane from that which is the result of mechanical injection, will be found in the absence of those general and common marks which show that the whole venous system has been loaded with blood. It is indeed of no great practical consequence; for the first or injected stage of intestinal inflammation is rarely dangerous or fatal of itself; and the effects of the process will always enable the practised observer to recognise the true cause.

The views of M. Andral, which we have hitherto noticed, may be regarded as explaining the pathological relations of the alimentary canal in a general sense. He then proceeds to show how far they are applicable to explain the phenomena of fever. He asserts, indeed, that the several lesions which he has described, were presented by the intestines of persons cut off by severe fevers. Without stating any objection, therefore, to the idea which our author entertains of the morbid

process to which the name of *fever* has been applied, we proceed to the conclusions which our author deduces from his researches.

In thirty-eight individuals, eleven only presented traces of gastric inflammation, sufficiently distinct to warrant the opinion that they influenced the symptoms observed during life. In thirty persons, red patches, eruptions, or ulcers, were found in the small intestine; but in fourteen only, these lesions appeared to bear any proportion to the severity of the symptoms. Lastly, in the great intestine, the alterations were more rare and less intense than in the other portion of the canal.

On comparing the lesions observed in the three great divisions of the canal, the following results are obtained. In five patients, (80, 99, 101, 102, 104,) they found the alimentary canal was exempt from every lesion of consequence. In seven others, (81, 85, 94, 107, 109, 110, 113,) our authors found lesions too inconsiderable to exercise any effect on the symptoms remarked during life.

In other individuals whose bowels were the seat of more serious morbid changes, these lesions still presented a peculiar character. In some cases this consisted in eruptions of varied form, such as have been already described. In many cases it was evident that these different eruptions had been the origin or commencement of patches of ulceration. In some instances, again, large patches, formed at once by the mucous membrane and the subjacent cellular tissue, were struck with gangrene. The shape and disposition of these patches gave them an analogy with carbuncle (*anthrax*) so close, that our authors propose to term them *internal carbuncles*, or carbuncles of the mucous membrane. In this instance, the formation of ulcers was a consequence of the shedding of the eschars or mortified sloughs.

In the smallest number of cases only did our authors observe a true spreading inflammation of the mucous membrane, analagous to that which appears either in the acute form in man, or in animals poisoned by corrosive agents, or in the chronic form in persons who have expired after long-continued diarrhœa. These several facts our authors esteem of the highest importance to illustrate the nature and treatment of Fevers.

Mesenteric Glands or Ganglions.—In the dissections of the Hospital de la Charité, these bodies were red, swelled, and gorged or distended, in most of the cases in which the corresponding portions of intestine were affected with ulceration. Two questions regarding this morbid state seem to give our

author some trouble; first, whether the glands are ever primarily affected; and, secondly, whether this affection is to be ascribed to direct absorption of irritating matter, secreted by the inflamed or festering surface of the intestine. We have no doubt that, in all cases, inflammation and swelling of the mesenteric glands depend on the state of the intestinal mucous membrane; and that direct absorption of morbid matter is not requisite to produce this effect. Simple irritation at the organic end of the lymphatics may be propagated along these vessels to the glands which they enter. The same affection of the glands has been remarked by all pathologists in inflammatory diseases of the intestines, from Morgagni, Baker, and Hunter, down to Petit and Serres in their account of Entero-mesenteric Fever; and Ballingall and Bampfield, in their dissections of Tropical Dysentry. It is in every case one of the effects of intestinal inflammation.

Liver.—The condition of this organ was altered in three cases only. In two of these its tissue was extremely dense, and in one it had an unusual rose colour. No symptom of hepatic disease appeared. In the third case (117), extreme paleness of its tissue was the only remarkable character. M. Andral states, that they generally found the bile modified in quantity or in quality; but his observations lead to nothing new or very precise.

Spleen.—In most of the subjects inspected by M. Andral, this organ was much increased in volume, and at the same time extremely soft, so that the slightest pressure reduced it to a reddish or greyish pulp, with nothing solid except the outer membrane, and some vasular or fibrous filaments proceeding from its inner surface. In other instances, equally enlarged, but less soft, it was filled with an enormous quantity of black blood, which could be easily detached from the proper splenic tissue by pressure or washing. In a smaller number of cases the spleen was found at once very bulky and very dense; in some it was very small, but so dense as to resemble the liver; and in the smallest number of cases, which M. Andral regards as true exceptions, it seemed to retain its ordinary size, consistence, and aspects.

The question of the nature of these several changes, and their connexion with the symptoms, cannot be said to be greatly illustrated by the researches or reflections of our author. After admitting that these changes in the appearance and properties of the spleen are the most remarkable phenomena of severe fevers, and that enlargement, with modification of consistence, are in these diseases, and especially

in intermittent fevers, as uniform as lesion of the alimentary canal, he terminates his inquiries abruptly, by acknowledging their difficulty, while we are ignorant of the functions of the organ.

Pancreas.—The pancreas is most rarely affected. Twice or thrice, however, our author found it more injected and larger than usual. He adverts, under this head, to the frequency of affection of the parotid gland, but adduces nothing either in the way of fact or explanation worthy of notice.

Urinary Organs.—In one case (100), the mucous membrane of the bladder was inflamed, and in another (105), it was slightly injected. We notice these appearances for the sole purpose of saying, that such inflammation is either accidental, or is the effect of the urine being allowed to continue too long in the bladder,—and either by its change of chemical qualities or its quantity, to become a source of local irritation.

Organs of Circulation.—Flabbiness, paleness, and discoloration of the substance of the heart, were remarked in the greatest number of individuals who sunk under an adynamic condition. Its cavities were ordinarily empty, or contained a small quantity of dark-coloured blood. In three or four cases only they contained fibrinous clots, detached from the colouring matter, but very soft, and charged with limpid serous fluid. The blood contained in the large trunks was also remarkable for its fluidity and deep black colour. In some subjects, the blood contained in the heart and vessels was rose coloured, and resembled water in which some red-colouring substance had been suspended, while small grains of coagulated fibrine were scattered along the inner surface of the vessels. M. Andral thinks it probable that blood of this description, if submitted to analysis, would prove to consist of water, albumen, a little colouring matter, and scarcely any traces of fibrine. Lastly, in the individual whose history forms Case 91, the fluid contained in the large vessels was in truth no longer blood, but a wine-lee matter, sanious in some parts, and sufficiently like the imperfectly formed fluid which is discharged from bad abscesses. Our authors have examined the inner arterial tunic, and found that it is rarely redder than natural. Inflammation of arteries they regard as a rare occurrence in fever.

Exhalations of blood they have found in the serous membranes of the cranium, of the spinal chord, of the chest, in the subserous, submucous, subcutaneous, or intermuscular

cellular tissue, and at the free surface of the mucous membranes. In some subjects, for example (115,) all these forms of bloody effusion were combined. In some it was a serous fluid of a red shade, more or less deep; in some it was a black fluid, quite similar to venous blood at the moment of its emission; in none was any coagulated blood found,—a circumstance which accords with the liquid, uncoagulated state of that fluid in the heart and vessels.

M. Andral closes this enumeration with remarks on the connection between this fluid state of the blood, and the occurrence of hemorrhage in scurvy, putrid, typhoid, and pestilental fevers, and the occurrences of this phenomenon in animals after the injection of putrid substances into their veins. These remarks are not without ingenuity; but as they are speculative, we refer to the work, lest we should misunderstand, and thereby misrepresent the views of M. Andral.

Organs of Respiration.—The pulmonic substance presented, in the dissections of our authors, frequent and considerable alterations. In some instances it was much obstructed by a reddish serous fluid, yet soft and easily lacerable,—still crepitating. In some instances, having become impermeable to air, it presented a brown or livid red tissue, which sunk under the finger like pulp. This pulpy softening of the lungs, which is very similar to certain states of the spleen, remarkable for softness, is observed chiefly in individuals attacked with adynamic fever; and though a peculiar effect of inflammation, analagous to the softening observed in similar circumstances in the gastro-enteric membranes, it must be distinguished from the red or grey hepatisation observed in decided examples of peripneumony.

In ten subjects, our authors witnessed proper red hepatisation. In three only, hepatisation was seated in the right lung, once in the upper lobe, and twice in the lower. In six subjects, hepatisation was seated in the left lung, once in its upper lobe, and in the five other cases, in the lower. Lastly in the tenth case, both lungs were hepatised—the left in its upper lobe, and the right in its base. In one case only (105), one of those in which the lung was hepatised, our authors observed gangrene of the lung; but the hepatised mass was situated in the lower lobe, and the mortified spot in the centre of the upper lobe, which showed no trace of inflammation. In several of the cases, various spots were passing from red to grey hepatisation.

In three instances they saw an enormous quantity of frothy colourless fluid issue from an incision of the pulmonic substance. This was too abundant to be regarded as a mere effect of cadaverous transudation, and was unquestionably the effect of effusion during life.

In two instances (83 and 103), the *pleuræ* presented albuminous membranous adhesions, without effusion,—unequivocal traces of recent pleurisy. In four cases, blood-coloured serous fluid was found in the pleural cavity, while the membranes gave no trace of inflammation.

From these cases M. Andral thinks it may be inferred that a considerable number of the patients sunk under a complication of pulmonic affection, with fever; and that this complication, favoured by the improper disposition of the ward in which the cases were treated, was a powerful cause of mortality.

Nervous System.—The traces of disease here were few and inconsiderable. In five individuals, the cerebral membranes were much injected, without loss of transparency, and without other change of structure. In two others they had undergone considerable alteration;—in one, a turbid milky serum below the arachnoid; in the other, this membrane very friable, coming away, when raised, in small flakes, with rose-coloured cerebral substance adhering. The cerebral substance was traversed with little red points, more or less numerous, when the meninges were injected; and without this, when the cerebral veins were gorged with blood. The researches of our authors have added nothing to our knowledge of the connexion between the diminution or increase of the consistence of the brain, and the symptoms of ataxic and adynamic fevers, nor on the state of the spinal chord, or its influence or condition during the process of fever. In two instances of persons who died in 1819, with ataxo-adynamic symptoms, the semilunar ganglions were remarkably red. One of these had, during the last forty-eight hours of his life, violent trismus, and tetanic rigidity of the upper extremities. They have met with nothing like since that time.

Such is a short view of the principal results obtained by M. Andral, in dissecting the bodies of persons cut off by fevers, either bilious, mucous, adynamic, or ataxic.

ART. XI. *An Essay on Curvatures and Diseases of the Spine, including all the Forms of Spinal Distortion: to which the Fothergillian Gold Medal was awarded by the Medical Society of London; and presented, at a Special General Meeting, on the 3d of May*, 1824: *with some additions.* By R. W. BAMPFIELD, Esq. one of the Surgeons to the Royal Metropolitan Infirmary for diseases of Children; Fellow of the Medical Society of London; Author of an Essay on Hemeralopia, or Night Blindness; of Practical Treatises on Tropical and Scorbutic Dysentery, &c.

[Continued from page 356.]

OF INCURVATION OF THE SPINE.

Of the History and Symptoms of Incurvation.

This species of disease is less frequent, and the curvatures produced by it are smaller, and less dangerous, than by the former. They occur generally in the neck or loins. The dorsal vertebræ have been curved inwards by force.*

When seated in the lower part of the spine, it is accompanied with lameness on one side or psoas abscess. The bend is regular and gradual, presenting an appearance called hollow-backed, and the vertebræ concerned are thicker on their anterior than on their posterior parts. Sometimes it is the result of the gradual contraction of the flexor muscles of the thigh, produced by psoas abscess. It is also caused by carrying heavy weights upon the head, or suspended from the neck; by the shortening of one extremity from the disease of the hip-joint; by an increased disproportionate growth of the bodies of the vertebræ; by rickets; and by the weight of a large head, producing inclination backwards: the œsophagus and trachea are pressed by the same causes. In rickets, the head sometimes by its weight inclines backward to such a degree, that the finger can barely be introduced between it and the dorsal vertebræ.

When it occurs in the loins, it is generally temporary: in the neck it is permanent. When it arises from the contraction of the flexor muscles of the thigh, it is perceptible in walking. Incurvation of the loins, even when combined with lumbar abscess, may be mistaken. To avoid which, the

* The style and matter of the author are freely used in this condensed analysis, continued from the former number.

following mode of examination is valuable. If the patient be laid on the back, the loins will form an arch over the mattress; then, by bending the thigh and relaxing the muscles, the spine becomes straight, and lies close upon the mattress. When the patient sits up, with the thigh bent upon the body, the loins become straight, and for the same reason.

In consequence of the processes of the posterior surface of the vertebræ being stronger and firmer, and less liable to ulceration than the anterior parts or bodies of these bones, the curvature backwards occurs more readily than forwards. The cervical and lumbar vertebræ are more liable to be curved forwards than the dorsal for the same reason.

Of the Treatment.

In the treatment of incurvation, the dorsal horizontal posture is most proper; " if the incurvation be of the cervical vertebræ, the chin should be drawn in towards the neck, which tends to throw the cervical vertebræ backwards; if of the loins, the flexion of the thighs tends to remove it, but this flexion should not be constantly employed, as it would dispose the flexor muscles of the thigh to establish a permament contraction.

" Where the incurvation is situated in the cervical vertebræ, the apparatus of bandage, &c. cannot be applied around the neck with any effect, because it would compress the trachea, &c. but a gentle extension can be employed with advantage, as well as a moderate degree of pressure on the sides of the neck directed backwards. The extension used may be temporary and often renewed, or it may be long continued or rendered *permanent*. Temporary extension may be made by two assistants, one of whom should lay hold of the head, and the other the hips or legs, or should press on the shoulders, and, by gently drawing in opposite directions, produce extension of the incurvated cervical vertebræ. This mode of extension may be often renewed. The extension may be long continued by the use of the collar, or of Dr. Darwin's steel bow crossing the head longitudinally, whilst the patient lies on the inclined plane. If this or the collar could be constantly worn, they would necessarily produce permanent extension.

" Proper position will also contribute to the recovery, by taking off the superincumbent weight and pressure of the head, and by assisting in keeping the cervical vertebræ extended. For these purposes, the patient should have his

head fixed in a socket let into the plane on which he lies, with his chin bent on the chest, and extension of the cervical vertebræ should be resorted to, immediately before the occiput is placed in the socket; the plane should also have a slight angle of inclination at first, that may be afterwards increased. For, the head being fixed, its weight does not press on the vertebræ, even when the patient lies on an inclined plane. Friction and shampooing should be employed. Leeches and blisters may be prescribed, if any pain or inflammation arise. Appropriate remedies should be adapted to the different constitutional disorders that may accompany incurvation, similar to what have been recommended in excurvation. Tonics are, in general, indicated."

The mattress should generally, though not always, be hard and unyielding. Thus, by lying on the face, the curvature forwards produced in lumbar abscess, from the contraction of the muscles, will be prevented. In general these contractions of the muscles yield to permanent extension, friction, exercise, and the warm bath or fomentation; with this exception, when the flexor muscles of the thigh have been a long time contracted: it is then incurable. Sometimes palsy with diminished feeling follows the displacement of the vertebræ, which have been forced inwards by accident, without a complete fracture or dislocation being produced. To remedy this, the best mode of treatment is lying on the back on a soft feather bed, with the head raised, the thighs drawn up towards the belly, in order to favour the bending of the spine outwards as much as possible. Extension of the spine, and at the same time pressure on the sides of the ribs, so as to make the vertebræ fall backwards into their place.

" If pressure be applied to two opposite points of a figure, nearly circular, formed of elastic or compressible matter, it will be reduced from the circular to the oval shape; so, by pressing on the sides of the thorax, the spine and sternum would be caused to protrude a little in the opposite direction, and by pressing on the sternum and spine, the chest would be flattened and the ribs made to project a little laterally. If this principle be correct, and experiment will prove it, the pressure made in Colonel Sibthorpe's case on the sternal extremities of the ribs, could not have contributed to the replacement of the vertebræ, which was more probably accomplished by the extension and dorsal position employed. If incurvation of the dorsal vertebræ should occur from any other cause than accident, the same principles of treatment will apply."

OF LATERAL CURVATURE.

Of the History and Progress of the Symptoms.

Sometimes caries weakens the spine laterally: the treatment mentioned under the head of excurvation then relieves it. Lateral curvature generally occurs during the growth of the body. It first appears in an elevation of one of the shoulders; three or more of the spinous processes form a curve to one side, and when five or six vertebræ are involved, it assumes the figure of an Italic *f*. Recumbent posture then frequently removes it. Convulsive actions of the muscles of the upper and lower extremities, sometimes affecting the whole body, particularly towards night, accompany it. As soon as one lateral curve is formed in the spine, the effort to sustain the body erect forms others, so that from the Italic *f* it assumes somewhat this form ſ; one shoulder is often higher than the other by two inches; one scapula appears larger, and projects; the two sides of the thorax when viewed posteriorily differ; one appearing more capacious than the other. The false ribs on one side approach the pelvis, and the lower extremity on that side appears elevated: the neck on one side is sunk in and flattened; on the other, is rounder and fuller.

If any disease inducing debility should attack the patient, the curvature proceeds rapidly.

In this species of curvature those parts of the vertebræ much pressed upon become thinner; sometimes where there are three curvatures, the whole spine is occupied; the spinous processes become twisted, so as to be directed towards the concavity of the curve, rather than directly backwards. In consequence the ribs at their vertebral ends are turned obliquely backwards on the convex side of the curve, and on the other side forwards. On one side owing to this arrangement they form a hump, projecting somewhat from an inch to two inches and a half. The angles of the ribs often by an unnatural growth project backwards so far as to cover the spinous processes, and to be mistaken for them. The ribs approach on one side more nearly than on the other; one scapula also looks larger than the other; this, however, is merely an optical deception. Caries seldom attends this species of curvature. The changes in the muscles may be readily anticipated from considering the character of the curvature. Thus the longissimus dorsi and sacro lumbalis project so

much on the convex side of the dorsal curve as to have the appearance of a tumour: in those positions, where the muscles are shortened from the approximation of their points of insertion, they lose their power entirely. Dyspnœa and palpitation of the heart are the result of the deranged figure of the thorax. The spinal marrow is often diminished in size about the centre of the curvatures; pus, coagulating lymph, are often found in the canal. The nerves also issuing from the spinal marrow are smaller on the concave side, than on the other; the organs which they supply must of course be debilitated.

"In the generality of cases of lateral curvature, there is not any pain complained of in the course of the curves, nor is any felt or excited by pressure; nor is the power of the muscles so much weakened in general, as in excurvation. Yet, when scrofulous irritation and inflammation, with the results described in the last paragraph, are experienced by the bones and medulla spinalis, pain is felt in the course of the curvature; spasms of the extremities and diaphragm take place; the muscles of the extremities become disobedient to the will, and the patient cannot walk steady, or the muscles may become paralytic;* obstinate constipation ensues; incontinence of urine and fæces casually happens; dyspnœa with a sense of suffocation occurs; the irritation of the medulla spinalis is communicated to the nerves united to and proceeding from it, and various nervous symptoms and feelings are induced; in young females, hysteria sometimes takes place, and the menstruation is painful or suppressed;—this latter event is, however, more common in excurvations, as should have been observed. It may be stated, that Mr. Lloyd relates a case of lateral curvature attended with lumbar abscess.—*P.* 258, *on Scrofula.* This is an uncommon occurrence."

Lateral excurvation affects the growth of the body, as it rarely arrives at half its usual size; the lower limbs are smaller than natural, and of unequal length.

Of the Remote Causes of Lateral Curvature.

Rickets, unequal length of the lower extremities, carrying heavy weights on one arm, an inclined position of the body to one side long continued; muscular debility; rheumatism

* It has been observed by many authors, that the condition of the muscles in the paralysis from diseased spine, differs from that in ordinary palsy, and that the muscles are not so soft, but the joints are more rigid.

of the intercostal and dorsal muscles; abscess on one side of the neck or trunk; scrofula, and tumours, are its most common remote causes. Young people, from sleeping two in a bed at a time and lying in consequence on one side, with the head resting upon high pillows, are liable to have the neck curved. Confinement, stays, &c. so as to induce weakness of the muscles; restriction to one posture, as in learning music, produces it.

Of the Immediate Causes of Permanent Lateral Curvature.

The principal immediate agent is the unequal pressure on the sides of the vertebræ occasioned by some of the remote causes above mentioned, of which the disproportionate length of the lower extremities, amounting in some instances to two and a half inches, is the most frequent in Mr. Bampfields experience. It "arises either from an extraordinary developement and growth of one extremity, which is frequently larger, as well as longer, and preserves its natural form; or from the diminutive growth of the other extremity, or from the ancle or knee joints bending, so as to cause one to be shorter than the other; the former is the more common cause, as the latter frequently exists without producing curvature."

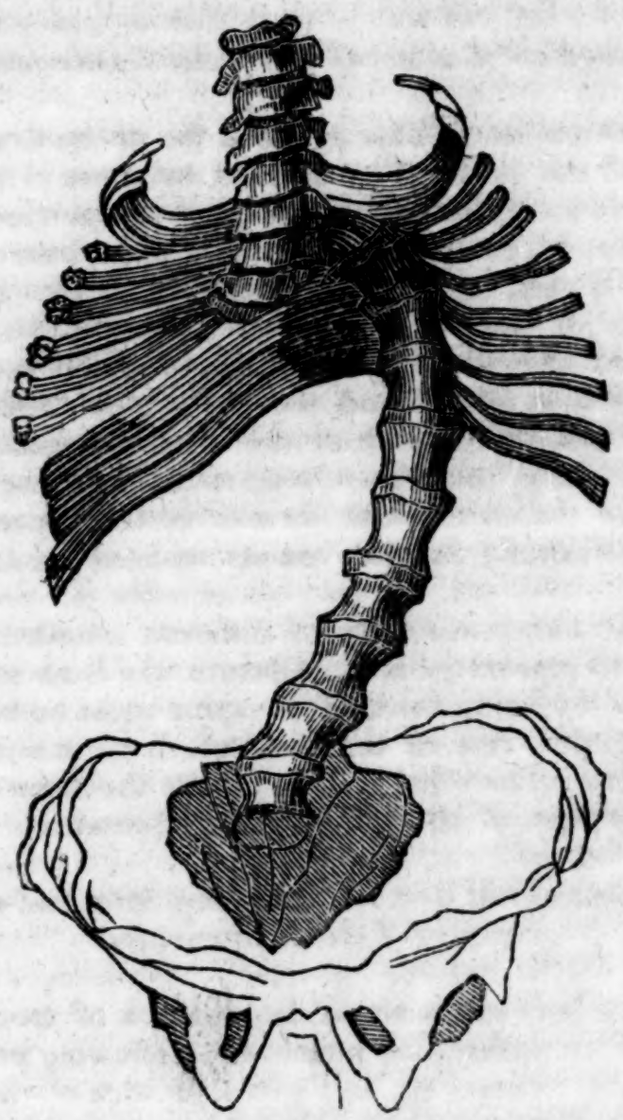
When the extremities are of different lengths, to enable the patient to preserve his equilibrium, the limb must either be shortened by being bent, or the spine must be bent to one side, thus giving rise to the kind of curvature now under consideration. The other causes act in the same way, producing absorption of the vertebræ from pressure.

Of the Dimensions of the Vertebræ and Ribs, and some Specimens of Lateral Curvature.

The author here gives some descriptions of specimens of this form of curvature, of which the following plate illustrates the most interesting, and gives an idea of the terrible extent of this disease.

Specimen 3d.—"The lateral curvature is inclined a little to the left side. All the dorsal and lumbar vertebræ are more or less involved in the dorsal or lumbar curves, which are bent into the shape of the annexed attempted diagram, in which the first four dorsal vertebræ form a convexity to the right side, the lower part of which appears to rest on the 6th, 7th, and 8th ribs of that side; the 4th, 5th, 6th, and 7th

dorsal vertebræ lie horizontally across the spine, very much reduced in size, without any distinct articulation remaining, and they do not add half an inch to its perpendicular height; the four lower dorsal vertebræ form a curvature, with its convexity to the left side, to which all the lumbar vertebræ are inclined.



"The five uppermost ribs on the right side of the dorsal curve in advancing forwards touch the sides of the vertebræ, and the 6th and 7th ribs on the left side touch the convexity of the vertebræ on that side. The five superior ribs on the left side cross the inferior portion of the spine, and the four lower ribs on the right side crosss the upper portion of the spine, as their vertebral extremities approach their vertebral

articulation. The ribs are of equal length on both sides; but on the right side lie in much closer contact, and the intercostal muscles are very short. The breadth of the eight lower ribs on the right side with the spaces between them is only four inches, four lines, and on the left side is six inches, two lines. The greatest space left between any two ribs on the right side anteriorly, is three lines and a half, and on the left side is seven lines and a half; and on the posterior portions, the ribs nearly touch each other on the right side."

The author then goes on to state a mode of ascertaining the degree of curvature, and whether the spine be free from anchylosis or inflammation.

"In the generality of cases, the degree and form of the curvature are evident, and can be distinctly traced by the eye or the fingers. If not, and it is desirable to ascertain the precise degree of curvilinear deviation, 'a plumb-line may be suspended opposite the middle of the occiput, whilst the patient stands in the first position of dancing-masters, which will hang perpendicular to the centre of the pelvis, and the deviations on each side of this line can be marked with red or black ink.' Having thus ascertained the degree and form of the curvature, we may endeavour to discover what changes can be effected in the distorted position of the vertebræ, and what approximation can be made to the true spinal line. Let the patient first raise himself as erect as possible; he should then perform flexion and extension of the vertebral column; the spine should next be stretched in the recumbent posture by assistants; and, lastly, let him be suspended by the head, with weights to his feet, in the manner already described at p. 146. If the curves be diminished by these evolutions; if the spine be brought by them to a line nearly straight; if all the vertebræ change their position and perform some degree of motion; it may be inferred, there is no anchylosis. If no pain be excited by those movements, the absence of inflammation may be deduced, and the prognosis may be favourable. But if the lateral distortions cannot be lessened by these evolutions and mechanical contrivances, the favourable issue is uncertain, and the patient should not be buoyed up with fallacious hopes of a perfect recovery, that will be most probably disappointed; and if pain be excited, the prognosis should be guarded, as the termination of spinal inflammation is not always subject to remedial control."

CHAPTER VIII.

SECT. I.—*Of the Treatment of Lateral Curvature.*

When this deformity arises "during the growth of the body, from one extremity being shortened, by the ancle or knee joints bending either outwards or inwards, in consequence of the relaxation and weakness of their ligaments, or of the rickety growth of the heads of the bones forming the joints, these states can be remedied, by wearing the apparatus particularly constructed for this purpose, and on the extremity being restored to its natural dimensions, if the lateral curvature has only been slight and incipient, it will generally recover, provided pains be taken to maintain the body erect in sitting and walking, and this exertion be aided by friction and pressure on the back, and extension of the spine. Appropriate internal remedies should be combined with the mechanical means, in order that any defect or disease of the constitution may be remedied.

"An inequality of the length of the extremities may be produced by the blighted or diminutive growth of one of them, which will dispose to a lateral curvature; in this case, the patient should wear the instrument made by machinists adapted to such instances, which places the body in equilibrium; and if he be young and growing, friction, exercise, warm bath, and stimulating liniments may be used a long time, with considerable success, in promoting its future increase of growth, and in restoring its equality of length."

When it arises from the extraordinary growth of one of them, the defect may be obviated by wearing a thick soled shoe on the other foot. The loss of the natural arch of the foot also occasions disproportion of the extremities. An apparatus to support the tarsal bones prevents any effect upon the spine.

If the curvature produced by these causes is slight, "the patient will, in all probability, soon recover from it, after the different contrivances for obviating the effects of those changes have been adopted; and, at all events, if he does not, the recovery can be aided by extension, pressure, and wearing a spinal machine with lateral and axillary supports, to prevent the spine from inclining to one side. When the curvatures have become extensive, additional means must be used."

If there should be any apprehension, that these mechanical

aids applied to the spine, should retard the developement of the diminished extremity, by which the curvature of the spine was originally occasioned, the patient should be confined to a sitting or recumbent posture, by which the extremities will be permitted to grow, and all mechanical contrivances should be interdicted. " During the use of the horizontal or sitting postures, the shorter leg can be conveniently exercised in flexion and extension; and friction, percussion, shampooing, local warm bath, and extension, can be much employed, by which a larger determination of blood and a greater generation of animal heat will be created, both of which have been found to conduce to its more regular and complete developement. As the unequal length of the bones of the extremities and the unequal thickness of the bodies of the vertebræ, in lateral curvature, originate, in general, in the growth of these bones being influenced by the rickety diathesis of the constitution, this state must be corrected, or removed, before nature can remedy her deviations of structure, and the bones must have acquired their natural hardness and proportion of earthly matter, before any remedy can be rendered permanently useful. To attempt the fulfilment of these objects, I have commonly directed the use of the cold both, either generally or partially, to the back or extremities, to be followed by friction; and I have prescribed chalybeates daily, with rhubarb aperients twice a week, whilst great attention has been paid to a plain and strengthening regimen in diet, and the digestive functions have been well regulated. The patient, in this case, as in the other species of curvature, should go, or be carried, into the open air, as often as is compatible with his situation."

Whilst the patient is in the sitting posture, " the spine can be balanced by a weight borne on the head, as recommended by Messrs. Grant and Wilson, or the dorsal muscles exercised by any of the various modes described at page 126, *et. seq.* to be available in the sitting posture, with the pelvis fixed, and which are calculated to exercise the spinal muscles in particular, or the muscles arising from the trunk, scapulæ, and clavicles, and inserted into the humerus, or which combines the action of all those muscles. To these may be added, modes of exercise suggested in a subsequent part of this section, and those that can be performed whilst lying. The frequency of repetition of this exercise of the muscles must, of course, depend on the patient's strength, and on their utility. After each effort, it is advisable to take rest, by lying down on a couch or sofa."

When it proceeds from the elongation of one extremity, it is evident that neither setons nor issues can be useful, as they have no effect upon the cause. Carrying a weight on the head when the posture is erect, is equally bad. "Time, medical remedies, and gradual processes of nature, may remedy this faulty growth, but it must be consigned to time, for by what process can we partially repress the growth of a whole limb? Can we by restraining its exercise? I fear the attempts must be futile; whilst, however, we may, with more certainty, promote growth by the means already cited. Still, it is the business of surgery to recommend the disuse of any attitudes that throw the body off its natural axis, and occasion unequal pressure on any portion of the vertebræ. Hence it is, that the recumbent posture, and exercise of the back in the sitting posture, are not only more useful than any of the modes of treatment by exercise, in lateral curvature, arising from this cause, but experiment has proved the use of the former to be superior to either plan, in some cases not originating in it, as will be exemplified in the sequel. Let us, at present, proceed to the consideration of the treatment of lateral curvature from other causes."

When it proceeds from carrying a weight upon one arm, "the practice should be instantly discontinued, and if the curve be slight, the patient should adopt the plan of carrying a weight on the head, combined with marching in the military attitude observed by recruits during the period of drilling, with their heads up, shoulders braced back, and the thumbs carried to the middle of the thighs; and he should resort to the exercises that move the muscles of both arms, and both sets of spinal muscles in an equal degree; when fatigued, especially if the dorsal muscles feel so, the patient should seek horizontal rest. The weakness of the body should be counteracted by tonics, chalybeates, a nutritive diet, and regular hours of exercise and rest. The patient might try the experiment of the effects of carrying a weight on, or inclining the body to the other side." When it proceeds from postures too long continued, as young people lying on one side in bed, artists in painting, engraving, &c. they should be changed.

The exercises directed for the purposes of lateral curvature should call into action the muscles on both sides of the spine, as they have decided effects upon making the spinal line straight. "Thus, flexion and extension of the spine, exercises equally the spinal muscles. The muscles of the trunk and arms may be exercised in an equal ratio, in the sitting or standing postures, by placing the body between, and turning

two wheels, fastened to a frame, or door-posts, with handles that have levers of the length of the semi-diameter of their circumference. The wheels may be of various sizes, and fixed higher or lower on the frame, as in proportion to their weight will the muscles be exerted; and the levers may be of various lengths, as in the proportion of their length will the body be obliged to perform greater or less flexion and extension in their rotation. If the latter should be small, let the lever be short; if flexion and extension of the spine should be considerable, let the levers be long. This mode of exercise either in the sitting or standing position, is applicable to lateral curvature from all the causes already enumerated, and is, in general, very useful, where exercise is proper. Light dumb bells may be used.

"Weak young ladies and boys, who are made to sit for long periods on stools or benches without any support to their backs, as on school benches or in learning music lessons, and who are obliged to assume the attitude of easy grace of some ancient statues, as of the Venus de Medicis or Antinous; but which is one of incipient lateral distortion, should be accommodated with a chair with a properly formed back, and the strength of their muscles should be increased by the institution of the exercises recommended in the sitting and standing postures, whilst their general health and strength should be promoted by tonics, regimen, and good air.

"When it arises from an irregular and disproportionate growth of the vertebræ, which rickets so frequently disposes them to assume, in the incipient stage, I have attempted to remedy it by the modes of exercise so often adverted to, but it must be confessed that such success has not been derived from this practice, as I was induced to expect from the high authorities and character of those who have recommended it, perhaps from their having advised it too generally, without being influenced by the discrimination the remote or proximate causes suggest."

When the vertebræ on the one side of their bodies have been absorbed so as to make them of a cuneiform shape, the erect attitude reason would dictate to be improper, and experience has fully confirmed it, as it increases the pressure, of course the absorption of the vertebræ, and the curvature. This is strikingly illustrated by the following case. "W. Williams, aged 16, Cleveland Street, Fitzroy Square, had observed a lateral curvature with the convexity to the right side during some months. On the 16th January 1822, he was examined. The curvature was single, and embraced

eight of the dorsal vertebræ, from the second to the ninth inclusive. The centre of the curvature inclined from the spinal line to the right, half an inch, in the erect attitude, and the vertebræ were turned or twisted a little backwards on that side, so that the right ribs and right scapula projected backwards and formed a misshapen hump. The dorsal portion of the vertebral column also protruded a little posterior to the spinal line, and, when erect, the head and neck appeared to incline forwards. On measuring across the back, the distance from the middle of the spinous process of the distorted portion of the spine to the side of the body, was five inches on the right, and six inches on the left; but the semi-circumference of each half of the thorax, from the spinous processes to the centre of the sternum, measured the same; a circumstance clearly evincing, that although the ribs on one side, were, in situation and form, arranged differently from the other, yet they were of the same length. Dyspnœa was induced, but his general health is not much affected.

"The left extremity was nearly one inch longer than the right. A cure of this curvature was attempted by a combination of various modes of exercise of the dorsal muscles, with military marching and improving the general health, until May, when, no amendment having taken place, he was then enjoined the obliquely lateral horizontal position; that is, whilst lying on the back, he was directed to lie either obliquely lateral on the portions of the ribs most projecting backwards, in which position the superincumbent weight of the body pressed them forwards and the distorted spine to the centre of the back, or whilst lying on the face, to lie obliquely on the anterior portions of the ribs on the left side, whilst a dosser made of sheet-lead, weighing from 14 to 20 pounds, and modelled to the shape of the distorted ribs, was was laid on their hump or protruding portion, which directed the ribs anteriorly, and the curved portion of the vertebral column into its spinal line.

"Extension of the spine was employed frequently every day, during which, pressure was made on the projecting portions of the ribs, and on the spinous processes in such directions as tended to restore them to their natural situation. Exercises in the recumbent posture were employed. p. 138. A bandage was also worn round the chest. His general health was promoted, and by these means he did not recover till June, 1823; after February, 1822, he gradually returned to the use of the erect posture, and exercises in the erect

attitude. The spine became straight some months before the projection of the ribs was reduced."

If this plan then be valuable in the slight degrees of curvature, resembling the Italic *ſ*, much more useful must it be when the curves are greater. "Proper position, extension, pressure, friction, exercises in the recumbent posture, &c. are among the natural and mechanical aids. There are two positions for common use of almost equal advantage, and they are both obliquely lateral, on a horizontal plane or couch, made for the purpose, and covered with a mattress; hence, the patient should be directed, either to lie obliquely on the side on which the ribs protrude backwards, or, in plainer words, to lie on the hump, as the superincumbent weight of the body bearing on this projection, will be equivalent to a certain degree of constant pressure, that tends to press those ribs forwards, and to direct the convexity of the spine towards the spinal line; or, he should be enjoined to lie on the face with an oblique direction to the opposite side, so that a dosser of lead, modelled in some degree to the shape of the distorted ribs or hump, and varying in weight according to age, or a bag of shot that will assume the turn of the ribs, may be laid on the projection so as to maintain a constant pressure, with the same indications as in the last position.

"When the curvatures are ambilateral, the positions may be changed from one side to the other.

"The spine should be kept as long and as often extended by mechanical contrivances affixed to the cross pieces of the couch-frame, or by persons pulling at the extremities, as the patient can conveniently endure. Some degree of permanent extension or for a long period, can be effected by the patient applying Dr. Darwin's steel bow to the head, whilst he lies on an inclined plane, with or without weights appended to his feet. P. 148.

"During extension, the surgeon, or some one under his direction, should, for half an hour or one hour or more a day, employ pressure with his hands on the curved portions of the spine and on the projections of the ribs; with his thumbs placed against the sides of the spinous processes, on the convex side of the curve, he can press the vertebræ towards the spinal line, and, by laying the palms of his hands on the backward costal projections, he can press them forwards, and, by giving a lateral direction to the pressure, cause the vertebral extremities of the ribs to aid in directing

the distorted vertebræ to their natural axis. Where there are two or three curvatures, a person may act on each side.

"Friction and shampooing I have found profitable, and may be employed at all convenient opportunities. The patient should not be allowed either to sit or stand upright, as it is as necessary to free the spine from all superincumbent weight in these cases of ambilateral curvatures, as it is in excurvation, and to keep it perpetually exempt from it; so that the particular horizontal postures recommended, should be constantly observed, and it is some consolation that a variety is allowable. To prevent the spine from bending during sleep, the patient should wear the bandage, pad, and shield, at night, or 'a pair of stays;' but the use of the steel bow does away with their necessity. He should use all the modes of exercise available in the lying posture. P. 349.

"By having recourse to exercises, the spinal muscles and those of the trunk are preserved from inaction and debility, as much as possible. The exercises can be a little varied by the position of the patient being altered, and will differ as he lies on his face or back. In the latter, he can exercise the muscles of the trunk, by pulling at the cords passed through the pullies of standards fixed to the ends of the couch, and he can perform flexion and extension of the extremities and throw out the legs. The spinal muscles will be exercised by the use of the moveable inclined plane. Whilst lying on the face, the patient can exercise the muscles of the neck and upper part of the back, by throwing his head backwards and forwards, and he can rotate his arms, and pull any ropes affixed to weights and pullies placed before him."

Mr. Bampfield states that as the intercostal and abdominal muscles are shortened on the concave side of the dorsal curve, more varied means than those recommended should be advised. "The patient should dilate the chest by frequent full inspirations. At the same time, the ribs might be lifted up separately, after the manner of the shampooers, who effect it by getting their fingers under the lower edges of the ribs and raising them up. The patient might be laid on the convex side of the dorsal curve, across some pillows or a circular frame made for the purpose, with the head and lower extremities bending over, in which position the intercostal muscles would be put on the stretch, and the ribs separated on the opposite or concave side of the curve. This position will be rendered more efficacious if the arm on the

concave side of the curve were raised over the head and moved up and down, whilst a little pressure was made on the spine of the ilium of the same side. Mr. Shaw thinks the following mode the safest and most effectual; which is effected by a modification of the moveable inclined plane, described at p. 349, *et seq.*—'A common pillow may be substituted for the socket upon D; the board C and B are to be arranged in the same manner as for lying on the back. The patient should turn a little on the right side; the left hand is to be raised over the head, and, by taking hold of the upper part of the sofa, or of a strap, she should endeavour to pull herself up. In doing this, it is evident that the ribs of the left side, which are squezed together, (being on the concave side of the curve,) whilst the lumbar portion of the spine is still kept fully on the stretch by the receding of the board B. When the patient is fatigued by the attempt to pull herself up, which requires considerable exertion, she ought to rest for some time, supporting herself by the left arm."

For the dyspnœa, which occurs in the advanced stages, lying in the oblique position on the projection is the best remedy. It also relieves the "nervous symptoms, resembling chorea sancti viti, irregular actions of the muscles, fits, pain of the head, and spasmodic affections of muscles, as of the extremities, eyes, &c. with which tonics, chalybeates, and aperients may be combined.

"Mrs. Lee's child, 13, Ranelagh Street, Pimlico, whom I had an opportunity of seeing, through the kindness of Dr. James Johnson, had a slight lateral curvature directly to the left side, and was affected with spasmodic actions of the muscles of the extremities and eyes, and, very frequently, had fits in the night: his general health was bad, and he occasionally fell down suddenly when walking; he was directed to use the facial horizontal position, and chalybeates with a rhubarb aperient twice a week were prescribed; by these means all the symptoms arising from nervous irritation soon ceased; after a few weeks, and before the spine had recovered its proper line, his parents allowed him to run about, and the spasms and fits returned periodically; he was again enjoined the same position, and took a nauseating dose of antimony and ipecacuanha prescribed by Dr. J. every night, before the accession of the epileptic paroxysm, and, after the second night, the fits did not recur, and he perfectly recovered."

In general, heretofore in lateral curvature, "the medical treatment has been the same as if the patient had been affected with a rickety growth of any other part of the body; hence, chalybeates, rhubarb aperients, tonics, and the cold bath, general or topical, have been commonly prescribed.

"If pain has arisen in any portion of the spine, local bleeding and blisters have been used, but they are not often indicated. In the rickety variety, issues and setons are not necessary.

"When a lateral curvature exists in the cervical vertebræ, endeavours have been made to obviate it, and take off the pressure from the concave line of curve, by directing the patient to lie on the convex or opposite side, and by elevating the concave side by a graduated pad, passed and retained under the inclined side of the head and angle of the lower jaw, whilst the cervical vertebræ were extended, and the head passed over to the convex side. The head may be kept raised a little, and the cervical vertebræ extended by the back-board or collar, with the forked rod that passes under the chin, and supports the head; in this case, the apparatus may be concealed.

"The collar or back-board, with the curved steel rod, may be used, in the manner already described, for the same purposes, and for producing some degree of extension. When the patient is lying on an inclined plane, the steel bow may be employed.

"It has been stated that scrofulous inflammation, ulceration, and caries, have been known to destroy the lateral portions of the vertebræ and intervertebral substance, and the spinal column being deprived of its natural support on either side, must incline on that side, so as to form a lateral curvature. Although this case is of very rare occurrence, yet it is of great importance, because it is the variety that has a direct tendency to destroy life. In this case, the pain is felt in some portion of the curvature, both on mechanical pressure on the part, and on the patient using exercise in the erect posture, which induces him to assume the recumbent position; the patient sometimes experiences acute lancinating pains of the back, and screams in his sleep; In lateral curvature, from rickets, &c. the patient very seldom complains of pain, or seeks the recumbent posture, nor is it excited by the mechanical means of cure; in the scrufulous variety, the general health usually suffers from the first, for if the appetite and digestive functions be not remarkably

disordered, yet the nutritive function is impaired, and the patient becomes emaciated, pale, irritable, and weak."

When the intervertebral substance, bones, and ligaments, become diseased, pus is formed and hectic fever is induced. "In such cases, local counter-irritation, and remedies for subduing local inflammation, should be employed; issues, setons, leeches, cupping, blisters, are all useful. I have found gentle alteratives and a daily hydragogue aperient the most useful medicines in the inflammatory stage. A diet of easy digestion should be prescribed. After the suppuration, that system of treatment that is best calculated to support the patient should be adopted.

"A recumbent posture should be enjoined in the inflammatory stages; in the state of caries instinct prompts it, and extension and pressure should be so gentle as not to excite pain.

"After the recumbent posture has been long observed, the same caution and rules should be observed when the patient begins to assume the upright attitude and exercise, as have been laid down for the guidance of patients who have been affected with excurvation. The same alternation of exercise and rest, and of the upright and recumbent positions, should be attended to, and the use of instruments to support the spine must be employed on the same principles and grounds of propriety."

When the curvature is lateral, without pain or tortuosity of the spine, the recumbent posture is unnecessary. The cure is to be attempted by proper exercise of the dorsal muscles and of the trunk; "by wearing the spine machine or collar, with lateral and axillary supports, and the rods for supporting the head, as often as the patient uses the erect attitude, and by the remedies employed for the cure of rachitis. This instrument should be worn in all cases, whenever the patient is obliged to assume the upright posture, and if a cure cannot be effected, this instrument, varied for particular purposes, must be worn. If instruments be injurious at all, they must be so in curvatures attended with rachitis, when the bones are soft and yielding. I, therefore, revert to the subject of the use of instruments. As all the spine instruments embrace and rest upon the pelvis, as their basis of support, they have been objected to by many eminent surgeons, whilst their employment has been defended by others, and great authorities may be quoted on both sides of the question. The bad effects are attributed to a weight or burthen being thrown on parts never intended or calculated to bear them, by which the pelvis is irreparably distorted,

and females suffer, during parturition, from pelvic deformity, preventing or retarding the passage of the fœtus."

In rickets, Mr. Bampfield states that it seldom happens that the pelvis is distorted when the spine is curved, and not often that the spine is curved when the extremities are bowed, and that it is not those bones, which impede parturition, that are subject to pressure from spinal instruments.

Without entering into the arguments particularly, which go to prove this point, the result of the discussion is that he is in favour of the application of instruments to the spine in this species of distortion.

In the intervals of the application of the instruments, the spinal muscles should be freely exercised; and they "should not be made to press on the ribs, or the costal or scapular projection in particular, as such pressure never does any good, but may increase the deformity."

With regard to the effect of the recumbent posture, in producing a soft state of the bones alleged by Mr. Shaw and others, Mr. Bampfield is not disposed to believe in it, since in dissections of persons who have been long bedridden, no such softening in his experience has been produced; the removal of rickets during confinement also proves that it is an effect by no means constant. He believes further, that it is only where there is diseased action in a limb, that it becomes emaciated.

"Exercise of parts during disease does not prevent muscles from wasting; for patients with spinal curvatures have been subject to a wasting and paralysis of muscles, who have persevered in exercise as long as they were able, as was the case of H. Peckman, Miss Ward, &c. And, after constitutional disease has been cured, the patients' muscles do recover their power of exercise, their plumpness, and activity, whilst they have continued the horizontal posture."

The length of time which is occupied in the cure of lateral curvature varies; if it is only commencing, it is cured in a few months, by attending to the processes detailed above. If rickets and a tortuous state of the spine exist, a year will be probably necessary. If scrofula also is united, the time is uncertain.

When the curvature exists upon both sides, and is considerable, the time will be lengthened, and will be short in proportion to the strict adherence to confinement, and the medical means prescribed.

In young persons, the chance of recovery is more proba-

ble: in persons come to their growth after the curve has become fixed, it is not to be expected.

CHAPTER IX.

SECT. I.—*Of the History and Symptoms of Angular Projection.*

This variety is constituted by the projection being angular and not curved, as in the above species. It occurs generally in young persons from three to twelve years; the projection is gradual, and is seated generally in the loins; the third or fourth lumbar vertebra projecting and gradually bearing out from the spinal line five or six of the vertebræ immediately above it: the integuments form an arch from side to side: the sternum projects a little as in excurvation; the patient gradually grows weaker, complains sometimes of great pain, at others of little or none; sometimes it comes on so suddenly as to oblige the patient to scream aloud, particularly where there are inflammation and abscess.

Frequently there is a collection of matter, without projection of the lumbar vertebræ. "In other cases, the ulceration from lumbar abscess extends to the ligaments, bones, and cartilages of the lumbar vertebræ, and thus produces the angular projection. Headach is induced frequently. Dyspnœa and cough are very distressing, if the middle dorsal vertebræ be the seat of distortion." The appetite fails, and dyspepsia sometimes, though rarely, appears. Emaciation, hectic, and confinement to bed, particularly where scrofula is the cause, is the result; the patient places himself on his hands and knees in order to get ease; the lumbar portion of the spine sinks inward, and the horizontal surfaces of the vertebræ are separated as much as possible. Pus generally collects between the second, third, fourth, and fifth lumbar vertebræ, and opens on each side of the vertebræ, at the top of the thigh near Poupart's ligament, or at the verge of the anus. Diarrhœa, and sometimes inflammation of the peritoneum or inflammation of the brain, generally close the scene.

The appearances on Dissection.

Caries of the bones, destruction of the intervertebral cartilages and ligaments; inflammation in all the surrounding parts; pus of a dark blue colour; the membranes of the spi-

nal marrow exposed, by the destruction of the bone, are among the most prominent circumstances discovered after the ravages of this disease.

" Dissection also shows a state of parts very different from the above. The whole of the vertebræ, intervertebral cartilages and ligaments shall be perfectly healthy, but an unequal or disproportionate growth of bone is evident, by which the spinous and transverse processes are preternaturally enlarged; the transverse and oblique processes of the 3d and 4th, or 4th and 5th vertebræ overlap each other, by which the spinous processes are thrown back and form the angular point. In one instance, the spinal canal and medulla were enlarged in this part. It has been observed, that lumbar abscess and the diseased state of the vertebral joints in this disease, reciprocally produce each other, but do not necessarily do so. When psoas abscess conduces to this projection, the intervertebral substance may be only diminished in thickness anteriorly. In other instances, the pressure of the matter of lumbar abscess may produce absorption, ulceration, and caries of the constituent parts of the spine on one side, that shall extend to the whole of the horizontal surfaces of two or more vertebræ and their intervertebral substance, and occasion angular projection. It may form a lateral excavation in the body of one vertebra or in the intervertebral substance, without producing distortion. In Mr. Brookes's museum, there is a specimen of a complete excavation of the body of the second lumbar vertebra by the pressure of the cyst of a psoas abscess on the right side. It may be remarked from this specimen, in illustration of what has been said relative to the mode by which spinal distortions are produced, that the lower horizontal surface of the 2d lumbar vertebra has been destroyed by ulcerative absorption, except at two anterior points, by which, as by pillars, the vertebral column has been supported erect, and the projection prevented. Hence, caries of the lumbar vertebræ, ulceration of the intervertebral substance, and lumbar abscess, sometimes exist, without producing curvature or angular projection; and the latter sometimes exist without the induction of those structural derangements."

On the Prognosis and Diagnosis.

Except when the disease is attended with lumbar abscess, the patient generally recovers. A long standing disease, great emaciation, hectic fever, and debility, generally portend

death. If the symptoms ameliorate after the treatment is adopted, the prognosis is favourable. If lumbar abscess appear, the prognosis is unfavourable, and it is nearly as much so if the abscess be the primitive affection.

On the Causes of Angular Projection.

Contusions, sprains, muscular debility, pressure of the cyst of lumbar abscess, rickets, and scrofula, are the remote causes. The immediate causes are an increase from rickets of the posterior parts of the vertebræ, so as to produce by its extension a compression of their bodies or anterior parts, and thus cause an angular prominence on the back; an habitual stoop from a sprain, &c.; any cause which will produce an absorption of the bodies of the vertebræ.

Of the Treatment of the Angular Projection of the Spine.

It is treated much in the same manner as excurvation. 1st. By lying on a soft bed on the face. The loins then fall downwards, and the vertebræ are separated. Fat people from the pressure upwards of the loins by this posture do not recover as soon as those that are lean. Inflammation particularly of the intervertebral substance, from its dangerous consequences, must be arrested. "Topical bleeding, repeated as often as necessary, by cupping or leeches; blisters; a daily hydragogue aperient, with alteratives; a low regimen, and perfect rest, should be prescribed."

Issues in the opinion of Mr. Copeland and Brodie have a peculiarly valuable effect in arresting the inflammation of the intervertebral substance. "In confirmation of the utility of artificial and local ulcerations on the skin, it may be observed that I have witnessed a successful issue, in two cases where ulceration has been accidentally induced by the pressure of the compress and shield; in one, from pustular eruptions, arising in the vicinity of the projecting spinous processes; and in one, where the eruption of small-pox supervened, and cured the patient."

If the patient be of a scrofulous family, a preventive plan of alteratives must be adopted, and the inflammation closely watched.

If the remedies are judiciously applied little constitutional derangement occurs. If it should, the remedies employed in excurvation should be used; costiveness must be avoided.

Chalybeates, cold baths, local and general, should be used, if there is a debility of the dorsal muscles.

If suppuration ensue, then tonics, generous and nourishing diet, and opium at night, will be proper.

"Pressure, extension of the spine, friction with stimulating liniments, &c. when issues are not established, are advantageously employed, as in the other varieties, as well as the use of the apparatus of bandage, compress, and shield.

"The bandage should be broad, and so applied that some of its turns reach high up on the ribs, and down on the pelvis, from which the patient experiences much relief and comfort. It need hardly be repeated, that pressure and extension should not be employed during the inflammatory or ulcerative stages of this form of disease, or of any species of curvature, when they produce irritation or pain; nor should they be used when it is supposed that an anchylosis, or deposits of osseous matter, are forming."

After pursuing the above plan for three months, on assuming the erect posture, the lumbar portion of the spinal line is inclined forwards; then lying on the back and the frequent exercise of the lower limbs by flexion and extension will make it natural. An apparent projection of a fourth of an inch of one or two spinous processes will remain, owing to some disproportion of growth. Sometimes it will be necessary to resume the position on the face, if the pain and the disposition to stoop forward should continue; and it may be necessary in the intervals of exercise to resume the horizontal posture, in order to subdue the predisposition entirely.

"To prevent stooping when employing exercise, the patient should wear the spine instrument, and in the cases (and they are many) in which the patients cannot be induced to resume the recumbent posture, or the parents of children do not enforce its use, this machine or instrument of a like construction should be worn a considerable length of time, to assist in retaining the body upright, but constructed on a plan not to grasp the pelvis so tight as to produce injurious pressure." See the collar described at p. 49.

If ulceration should occur over the spinous processes, it will be necessary to leave off all pressure, and the ulcer be protected by a guard from the contact of the bedclothes. In unfavourable cases death takes place generally in two or three years; recovery generally in a year.

Mr. Bampfield, after stating some cases, subjoins an account of a collar or spine instrument in the following terms, which it may be useful to make known. "It consists of an

upright or spinal bar, that is placed in the direction of the spine; of a straight bar that crosses the scapulæ, and may be called the scapular bar; of axillary supports; and of a pelvic hoop that embraces the pelvis and rests on the spine of the ilium. The whole are of steel. The upright or spinal bar has an open groove along its middle, and eight screw holes at the top and bottom. A moveable soft pad, to be opposed to the outward curvature or angular projection of the spine, traverses in the groove, and may be fixed opposite to any part of the spine by means of a thumb-screw and nuts on each side of the bar. The screw-holes at the top and bottom are at a small perpendicular distance from each other, and are for the purpose of screwing on the scapular bar, and the back piece of the pelvic hoop below, at a distance most suited to the height of the patient, and can be accommodated to any after-growth. The pelvic hoop consists of three pieces: a back piece and two moveable lateral ones. The back piece screws on the lower part of the spinal bar, and has an open groove, three inches long, on each side; the lateral pieces have corresponding grooves of the same length, and are fixed to the back piece by means of thumb-screws and nuts. The lateral pieces traverse, and can, of course, be let out the whole length of their grooves, and can be fixed to any part of their length, by turning the thumb-screws that pass through the grooves of both pieces. The lateral pieces are shaped anteriorly, so as to seize the spine of the ilium, and are partly covered with leather, to which a strap and buckle are attached, for the purpose of buckling the hoop across the pubis. The scapular bar fastens to the spinal bar, by a thumb-screw, and has four or six screw-holes at each end, to which the axillary supports are screwed. The axillary supports and contrivance for bracing the shoulders back, being fixed by thumb-screws to the scapular bar, form a square of small steel bars.

"On the lower bar is fastened a cushion for the axilla to rest on; on the anterior bar is a cushion to press against the fore part of the shoulder; the anterior bar slides off and on the upper and lower bars, and when taken off, the upper bar lifts up, and allows the shoulder to be put into the square; the anterior bar has straps above and below, with button holes that fasten to knobs on the posterior bar, by which it is made to fit close, and, by its pad, to press the shoulder back. The axillary supports prevent the body from bending laterally. To this machine may be added the curved or forked rod, to support the

head, or the mechanical contrivance to keep the head erect, which forms a part of the next instrument to be described.

"The superior advantages of this spine instrument are the following. It is so light that it only weighs a little more than two pounds. The whole is made of tempered and elastic steel, which allows of some degree of action of the muscles of the spine and trunk. The axillæ and shoulders are protected from being cut and chafed, as they usually are by the shoulder straps of other collars, and no pressure is made by any part of it except the pad. By the open sliding grooves and screw-holes, it can be accommodated to all sizes and changes of growth, or any alteration of bulk that may take place during the cure.

"It would be difficult to improve upon this instrument, which is the joint invention of Mr. E. Jukes, and Mr. Moginie. Axillary supports, made of steel, might be constructed, of the form of the shoulders, without pressing against the edges of the arm-pits.

"Mr. Moginie has also constructed a back board, to which is fitted a very ingenious contrivance to keep the head and spine erect. It consists of a common back board; the scapular bar and axillary supports already described; of a box spring, pully, and cord, and a head-piece or band.

"The scapular bar is screwed to the back board. The head piece is made of a padded elastic spring, covered with leather, which grasps the head in a line with the forehead, around which a strap is passed from one side, that is buckled to the other, and secures it. The box spring is secured to the bottom of the back-board, and is of the same materials, and made on the same principle, as a watch spring.

"From the spring a silk cord is led through two pulleys, to be hooked to the head-piece. The spring can be adjusted to any required power, as by winding it up it can be increased, and *vice versa*.

"When the head is erect, the cord does not draw it back. But as the head is bent forwards, the spring resists more and more, as every inch of the cord is extended, until it arrives at a given extent, beyond which the spring will not yield, and then the tight cord occasions the head to be pulled backwards so forcibly, that the patient is soon weary and raises the head erect. This bending and raising the head and upper part of the spine may be performed as an exercise. The whole of this instrument and the last may be concealed, except the head-piece, and this may be covered with vellum, or a riband, so as to appear like a lady's fillet;

and, in a young lady, would be regarded as an ornamental part of her head-dress."

As the Chapter

On Fractures and Dislocations of the Vertebræ

embraces diseases which are incurable, it is passed over.

Of Concussions and Stretching of the Spinal Marrow.—Of the Symptoms, History, and Treatment.

Concussion of the spinal marrow is not uncommon; and is produced by falling on the buttocks, on the spine from a height, and by blows upon the vertebræ.

The symptoms which occur at the moment of the injury are "stupefaction; severe pains of the part affected or contused, so great, that men of great firmness of mind are compelled to give strong expressions of their sufferings; sickness; vomiting; sometimes hemorrhage from the ears or nose; partial or total loss of motion or of sensation or of both in the lower extremities; sometimes involuntary defecation and micturition; syncope. The external parts of the back are sometimes bruised and swollen, and every motion of the body occasions pain. The consecutive symptoms are such, as, in general, arise from inflammation of the spinal chord, or are such as evince more serious lesion and a tendency to death. If not immediately induced, loss of sensation and motion of the lower extremities sometimes gradually supervene, and have been known to ascend by degrees and eventually extend to all the muscles and parts of the body, and occasion death.* Retention of urine may at first take place, but is soon followed by paralysis of the bladder and rectum. If inflammation of the spinal chord ensues, bloody urine, pain of the kidneys, and tenderness of the hypogastrium may supervene, as well as pain of the head and shoulders; delirium; convulsions; trismus; fever; sleeplessness; slight difficulty of deglutition; disordered respiration and moist cough; diarrhœa; sloughs over the sacrum, ilia, and trochanters; death.

"A greater or less degree of paralysis of the parts below the affected portion of spinal marrow or contused spine ensues, in proportion to the violence of the shock, the same as in fractures; but, in the former case, there is no evidence of displacement from the advancement of a broken vertebra pro-

* Ollivier, chap. v.

ducing a hollow or sinking in of a particular part of the spinal column.

A fracture of the spine without displacement cannot be easily distinguished from a case of concussion, as such cases have been treated for concussion, and the fracture has not been ascertained until after death. Boyer mentions an instance of paralysis of the extremities, rectum, and bladder, being induced in a tumbler, on the day after he had, by some difficult evolutions, twisted the ligaments, and stretched the spinal chord. The pain, at the time, was insupportable, and he died in a few weeks."

Death has sometimes ensued from the patient's slipping his foot, and falling on his breech; others have fallen from heights and yet have recovered—the prognosis should therefore be guarded.

When the recovery is perfect, the prognosis gradually appears more favourable in the gradual diminution of every symptom. "When the recovery is imperfect, the power of locomotion does not regain its obedience to volition, but, in the attempt to walk, the muscles shake the extremities, and render them unsteady, and unable to support the body erect, without the collateral support of a stick or crutch. This accident has been sometimes followed by weakness of the back and lower extremities, by rheumatic pains of the injured portion of spine, and, more rarely, by a complete or incomplete paraplegia, and incontinence of urine; all of which consequences render the cure imperfect. Some cases of pure concussion of the medulla spinalis, without any structural derangement of the brain or medulla spinalis being apparent on dissection, have terminated fatally in a short time. *Boyer, tome* i. *p.* 95. *Frank, Oratio de Vertebralis Columnæ in morbis dignitate.*"

Extravasation of blood, inflammation of the spinal chord, with effusion of pus, &c. are not uncommon consequences.

The first indication is to remove the inflammation; the next to restore the paralyzed organs.

"The patient should be bled, and put into a warm or hip bath, or anodyne fomentations applied to the injured part, to soothe pain, as long as they afford relief, and prevent irritation, whilst an opiate should be administered. The patient should be kept in bed, and the strictest antiphlogistic regimen, in diet and medicine, should be observed, and the bowels rendered active, by purgative medicines, as long as pain is felt in the injured part. The fomentations should be also re-

peated. Topical bleeding and blisters are serviceable in removing obscure or chronic pains. After this stage of treatment, friction of stimulating liniments should be made on the spine and lower extremities; artificial exercise of them should be daily employed, until the patient is enabled to perform it by his own voluntary powers. Electricity and tonics, and even diffusible stimuli, are sometimes useful after the inflammatory stage of disease has passed; but it is peculiarly necessary to treat the disorder as inflammatory, as long as any pain remains in the course of the vertebral column, and to continue local bleeding, blisters, &c. until it be removed. Constipation, which is sometimes obstinate, should be obviated, either by gentle aperients, or stronger cathartics, as the case may require.

"When paraplegia continues for a long period, whether induced in the first instance, or at a subsequent period; in addition to the topical bleeding, the insertion of caustic issues close to the contused or painful vertebræ, have been attended with favourable or successful results.—*See Dr. Jebb's cases, and the Edinburgh Journal for January* 1818, *p.* 59.

"Nux vomica should be tried; frictions with the hand or flesh brush, or with stimulating liniments, should be persevered in, as well as artificial exercise of the extremities, and occasional warm baths.

"If retention of urine occur at any period of the complaint, the catheter should be introduced to relieve the bladder.

"Should any patient continue helpless and bed-ridden for a long period, as after fractures of the vertebræ; sloughing of the soft parts over the sacrum and trochanters, and about the nates or ilia, may arise and require the remedial measures already recommended in such cases, in Chap. X. Sect. II."

Of Spina Bifida, or Hydrorachitis, &c.

Camper and Hoffman relate one case of recovery, and Terris another, which took place after a spontaneous rupture. "Sir A. Cooper has published two cases of recovery, in the Medico-chirurgical Transactions, and he has been kind enough to inform me of two other cures in his own practice, aud of a case of recovery effected by Mr. Hickman, of Marlow, and one by Mr. Pearson, of Kirby Lonsdale.

"Although patients in general die early, Bonn mentions one who lived ten years; Warren, one who lived twenty. Camper, one who lived twenty-eight; and Ann Selby lived twenty-one years—and some recover, and live an indefinite period. Genga's case, above referred to, was cured.—*Morg. Ep.* XII. *Sect.* XII."

On the Treatment of Spina Bifida.

The treatment is palliative or curative. "The palliative treatment consists in employing drying plaisters and ointments, fomentations, poultices, cold lotions, and in applying bandages, compresses of lint or plaister of Paris, hollowed and lined with lint, and fastened on by adhesive plaister, so as to produce gentle pressure, and promote absorption by means of it. The application of a truss, to prevent the descent and enlargement of the tumour, has been proposed and practised by Sir A. Cooper, with success, in three instances."

"The following is a report of a case, contained in a letter from Mr. Wentworth, of Cambridge, to Sir Astley, who, at my request, most obligingly applied to him for it, and which was treated on the palliative mode, by a truss, &c.

"Having this day to pay our patient my usual weekly visit, for the purpose of examining the back, I took the opportunity of getting the dimensions of the tumour, which are as follow: circumference at the base, 18½ inches; over the tumour, longitudinally, 11 inches; over it, laterally, 9 inches: the excoriation, which was troublesome some time ago, has entirely subsided, by attention to changing the cap (which he constantly wears) and the use of the oxyde of zinc. As a more quiet avocation, our patient has embraced the profession of the law, for which he is most ably qualified. He enjoys, I may say, a very fair share of health, takes plenty of exercise without any inconvenience, and his only complaint appears to be an inability to retain his urine, for a want of power in the neck of the bladder, which is remedied, in a great measure, occasionally, by the use of the jugum penis. This, however, is not constantly worn."

Some cases of this disease are entirely incurable, as where hydrocephalus is combined with it.

"The most favourable cases for experiment, or for attempting a cure, are those where there is only one tumour seated low down the spine, where it is small and local, where the general health is good, and the lower extremities and pelvic viscera are not paralytic."

Pressure, so as to induce absorption, and the evacuation of the fluid, constitute the radical mode of treatment. Ligatures round the tumour have also been tried.

" The tumour has been opened by scalpels, lancets, needles, and small trocars. Opening by the needle or small trocar, is the most judicious and rational; although Ruysch mentions that all the patients whose tumours he saw opened with a needle, died in a few days. Mr. Abernethy proposed a modification of the treatment by puncture, by which the evacuation of the fluid is conducted in a manner similar to that of the pus in lumbar abscess. After the tumour has been punctured by a needle, or a very fine and small trocar, and the fluid discharged, if the aperture do not close of itself, it is to be closed by means of adhesive plaister, over which a plaister of mild salve and compress are to be laid, and confined either by adhesive straps or a roller.

" After the fluid is discharged, the sac puckers, and falls into wrinkles, and does not contract smoothly, or at all perceptibly. The fluid collects again in three or four days, and should be again evacuated with similar precautions and after-treatment to those already mentioned. After several evacuations had been made, in Sir A. Cooper's case, a piece of pasteboard was placed upon the flannel roller over the tumour, and another roller over the pasteboard to confine it. Three published cases have been treated on this plan of evacuating the fluid, from time to time, and of thereby exciting adhesive inflammation, and of profiting by pressure at the same time. Those of Mr. Abernethy and of Mr. Richt,* of Berlin, died; Sir Astley Cooper's patient, Little, recovered. In the latter, after nine evacuations had been made, the " surface of the tumour inflamed; the fluid, not more than half its former quantity, was mixed with coagulable lymph, and the child, suffering from considerable constitutional irritation, was ordered scammony and calomel, and the rollers were discontinued. On the next visit, February 26th, the tumour was not more than a quarter of its former size; it felt solid; the integuments were thickened, and it had all the appearance of having undergone the adhesive inflammation. On the 28th, it was still more reduced in size, and felt solid. March 8th. The swelling was very much lessened; the skin over it, thickened and wrinkled; a roller was again had recourse to; a card was put over the tumour, and a second roller was applied. March 11th. The tumour was much re-

* London Med. and Phys. Journal for July, 1822.

duced; the skin covering it was a little ulcerated. On the 15th, it was flat, and still a little ulcerated. On the 27th, the effused coagulable lymph was considerably reduced in quantity, and of a very firm consistence. On the 2d May, a loose pendulous bag of skin remained, and the child appearing to be perfectly well, the bandage was soon left off. On the 18th December, the little boy was attacked with the small-pox and went well through the disease. The skin now hangs flaccid from the basis of the sacrum; its centre is drawn to the spine, to which it is united, and thus the appearance of a navel is produced in the tumour, by retraction of the skin. The pricks of the needle are very obvious on each of the punctured parts of the tumour, forming slight indentations.' *See Medico-Chirurgical Transactions, vol.* II. *p.* 326—329.

"This boy is now fifteen years old, and is as stout and healthy as a young man can be. He is an apprentice to a pilot, and is much employed in rowing, and other laborious work. He never lost the use of his limbs, and walked as soon as the other boys of the family. The bandage was left off when he was six months old, and he has not since worn any thing to protect it from external injury. The appearance remains the same as Sir A. Cooper has described it above."

Another case was treated successfully by Sir A. Cooper. "The child was punctured 52 times during a year, without the occurrence of an unpleasant symptom; the tumour gradually subsided, and the boy wore a truss, to protect it from external injury. The boy is now fifteen years old, and is very strong and healthy. His truss is seldom worn, and he employs himself in the laborious offices of husbandry, about his father's farm. He has had several falls on his nates and back, without any particular evil ensuing."

Another case by Mr. Hickman of Marlow succeeded by the same operation: the father of the boy made the punctures, and the child lived till his ninth year.

"The watery tumour was situated on the spine, a little above the sacrum. The skin was shining, and thinly covered with hair, and, when pressed upon, the child became uneasy. The mode of cure by puncture, was began about a week after its birth, and repeated every day. The part was afterwards defended by a compress of soft linen rag, and a broad bandage. The fluid that issued from the punctures was transparent, mixed with a slight tinge of blood, from the wounded cuticular vessels. The amendment was progressive, and at the end of four months the part was firm, when a common

plaister was put on to defend it from accidental friction. The child grew, and got on its feet at the usual time, and was afterwards as active in running, and enjoyed as good health, as any other child. Aug. 9th, 1824."

Another case was treated successfully by Mr. Pearson, of Kirby Lonsdale.

Mr. Bampfield then adds: "all the palliative remedies may be used without injury, provided pressure be employed with discretion, and be moderate. But, of all the curative means and operations that have been resorted to for a radical cure, only one operation appears justifiable, which is the modified one by evacuation, proposed by Mr. Abernethy, and practised with success in the above instances, by Sir Astley Cooper, Messrs. Hickman and Pearson. But the profession are at liberty to attempt the evacuation by any means adapted to the cure of dropsies in general, with safety to the patient." The following curious case is then stated.

"'Ann Selby, aged about nineteen years, residing with her parents in the Horseferry-road, Westminster, was born with a slight membranous tumor, the size of a small pigeon's egg, situated on the superior portion of the sacrum, and below the third lumbar vertebra. She was, in every other respect, well formed, and continued to grow in the most satisfactory manner, until the age of eight years; walking about the house, without much inconvenience from the tumour, the latter being supported by an appropriate bandage. At this period, the right foot began to contract and turn inwards and upwards; the tumour continuing, at the same time, to increase.

"'At eleven years of age, menstruation became fully established in the usual manner.

"'At fourteen, the menses ceased to flow from the natural passage, and made their appearance through certain deep ulcerations, which had formed, and still exist, in the ancles and fleshy part of the left thigh. This fact, respecting menstruation, is incontestible, and has been verified by several practitioners.

"' When fifteen years old, the left foot of the patient contracted also, and turned towards the right.

"' The vertical line of the tumour measures thirty inches; the greatest circumference twenty-eight inches; and the lesser, twenty inches.

"' The tumour is transparent, equally distended, fluctuating, and occasionally larger than at other times. A kind of horny scale, not quite as large as half-a-crown, which oc-

casionally peels off from the surface of the tumor, and leaving the skin without its cuticle, gives rise to a very perceptible oozing of a serous fluid, which, after a short time, ceases; some of it drying in thin layers, and leaving the horny scale above described.

"'Neither the urine nor the fæces have ever been retained, but pass involuntarily and almost constantly.

"'During the last two years, the health of the patient has been sensibly declining, and, from being corpulent, she is now wasted almost to a skeleton. The stomach rejects every kind of food, unless accompanied by a large quantity of gin, which forms her only drink, and, indeed, almost her only support. The developement of her intellectual faculties seems in no way to have been influenced by the formidable disease with which she is afflicted, and which she bears with becoming resignation.'"

"Subsequently to this report of Mr. Jukes, the tumour became subject to erysipelatous inflammation, the last attack of which terminated in mortification, and on the separation of the slough, the tumour was evacuated, and the patient soon died. The tumour contained seven pints of a serous fluid. The cyst in which it was contained, was thick and vascular, its outer coat was formed of skin, and the inner of expanded and thickened membranes of the spinal marrow, somewhat vascular. The lumbar vertebræ, pelvis, and tumour, were privately taken away, and I have not the permission of their possessor to state the particulars of their appearance.

"I may, however, venture to add, that the posterior and nearly all the lateral bony coverings of the spinal canal were wanting, from the fifth lumbar vertebra to the end of the sacrum, and progressive absorption had commenced on some parts of the anterior portion. The nerves are regularly sent off, until the medulla spinalis enters the sac of the tumour.

Much fat was found in all parts of the body; the bones were firm and solid, even within the capsular ligaments of the hip-joints; a circumstance which strongly militates against the notion of a recumbent posture long observed, always conducing to a rickety or soft state of bone, or one in which there is a deficiency of earthly matter, for Mr. E. Jukes has very lately assured me, the patient was never able to walk about and take exercise from her eighth year, after the right foot contracted and turned inwards."

The memoir then concludes with some notices of the diseases of the spinal marrow, which probably will form the subject of a more copious analytical review, taken from another work at some future period.

Art. XIII. *Philadelphia Journal of the Medical and Physical Sciences for February*, 1825.

[Continued from page 412.]

Dr. Chapman on Epidemics. In the last number, the deleterious influence of animal putrefaction was discussed. With regard to the effect of the union of vegetable and animal miasmata, Dr. Chapman is not decided, though he conjectures that they have a less morbid tendency than those arising from vegetable putrefaction simply. There are strong facts, however, in support of the deleterious influence of vegeto-animal effluvia, some of which are given in p. 493-4 of this number of the Recorder. The essay proceeds:—

"Continuing the inquiry, I shall now make some remarks on Contagion and Infection, as causes of epidemics. These terms being very often confounded, as well in professional usage, as common parlance, it may be proper here to endeavour to assign to them a more precise technical signification."

The author proceeds to examine the etymology of the term contagion, which he thinks, from evidence drawn from that source, should be restricted to those diseases which are propagated by contact or inoculation, as psora, syphilis, hydrophobia, the vaccine, &c. and the term infection, to those contracted though the medium of the atmosphere, such, probably, as scarlet fever, typhus, measles, hooping cough, &c. As common usage, the great arbiter of language, has confounded these terms, it will be difficult now to separate them, particularly as, on examination, the distinction does not appear to be philosophically correct. For, as the poisons of typhus, scarlatina, measles, hooping-cough, &c. the infectious diseases according to the essay, are communicated through the air and eventually to the blood, and as psora, syphilis, hydrophobia, the vaccine, &c. which are instances of contagious diseases, are produced by the poison applied, though in larger quantities, by inoculation, and also to the blood, the distinction does not appear to be well grounded. The difference is only in the degree of the quantity applied to the system. Besides, some of the diseases which are produced through the medium of the air, are also the result of the insertion of the poison into the system by mechanical means, as the small pox and measles: typhus also has been the result of the injection of fluids, imbued with putrid ani-

* *Erratum.*—In page 412, line 20, of the last number of the Recorder, for "except the whale at St.Cruz," read "except the dissections in London."

mal substances, into the blood,* as well as by the lungs through the medium of the atmosphere. An eruption resembling psora, a disease generally the result of contact, is stated by Lind to be a symptom of fevers† produced by miasmata, when there could exist no suspicion of contagion; and syphilis, though it is generally produced by the insertion of the virus into the surface by contact, is communicated to the system of the child through the blood of the mother; a case in which actual contact of the system with the external sore is impossible.

As, then, contact of the poisonous matter to the system produces equally diseases which have been denominated by our author infectious and contagious, and is equally necessary in both; there is, therefore, philosophically and strictly speaking, no proper ground of distinction between them, drawn from the mode of communication.

Dr. Hosack's ideas on this subject, are recommended by Dr. Chapman as valuable. The distinguished rank of Dr. Hosack,‡ as well as the desire of throwing as much light as possible on the question, will render, we hope, his remarks acceptable.

He arranges these diseases as they are produced, 1st. exclusively by contact. The itch, syphilis, sibbens, laanda, yaws, leprosy, hydrophobia, and the vaccine.

2d. Both by contact and the air. Small pox, measles, chicken pox, hooping cough, scarlet fever, and cynanche maligna. Contact of the matter with the blood is in both of these classes necessary—there is therefore no real ground of distinction between them. The same may be said of Dr. Hosack's remaining class.

3d. Such as are in general communicable though the medium of an impure atmosphere. Plague, yellow fever; typhous, jail, ship, hospital, or lake fever, and dysentery. Their history is not yet sufficiently complete, we believe, to justify a proper arrangement.

The nature of the effluvia which produce low fevers and are circumscribed in their action is then considered; their adherence to wool, cotton, brick and stone walls, and the circumstance that they do not attach themselves to floors of earth, is also mentioned.

Cold weather has been considered more favourable to ty-

* See Medical Recorder, p. 417, No. 30.

† Lind, p. 17-18, Ed. 1811.

‡ See Hosack's letter to Chisholm, 1809, published in Thomas' Practice, p. 957.

phus than warm. It certainly forms a powerful agent in the northern latitudes of increasing it. It is probable, however, that excessive heat will be found to be as powerful a source of predisposing debility and of typhus as cold. Thus the yellow fever and the cholera morbus, which has lately devastated Asia, are eminently typhous, and heat is necessary to them both. The common typhous fever of camps, ships, jails, &c., our author considers as very generally, if not always, appearing during the winter, and when they take place in a crowded vessel in warm climates, that they disappear when she approaches the higher latitudes. The volatilization of the virus is effected and dissipated by the heat and free ventilation, and he quotes high authority to support it. A slight detail of the history of the subject of contagion is then given, and the proofs of the question whether the ancients were unacquainted with it or not. "These proofs, however, says he, relate exclusively to low or typhous fever, for all the diseases universally confessed to be of a contagious nature, as some of the exanthemata, and syphilis, hydrophobia, &c. are of modern date.*"

On this subject we beg leave to pause for a moment and ask, what are we to understand by this latter sentence? Does the author mean to say that hydrophobia is a disease confessedly of modern date; or is this the point which Dr. Yeats is called upon to settle? As the exanthemata and syphilis, which fill up the clause, are believed to be of modern date, and are coupled with hydrophobia in the same sentence to that effect, it is clear that he meant as his words express, that hydrophobia was unknown to the ancients. On examining the paper of Dr. Yeats, we find, that, rich as it is in Greek and Latin quotations, hydrophobia is not mentioned in his essay. We are therefore left to believe that this disease is confessedly of modern date. We think it our duty to state, that Celsus, who lived upwards of sixteen hundred years ago, wrote a whole chapter on the subject of hydrophobia, and what is more, gives us some valuable information upon it. Without consuming our time in discussions which may appear useless to some, it may be observed, that Celsus advises in that chapter, that patients ill with hydrophobia should be thrown into water and forced to drink, by immersing them in it, and least, by the agitation caused by being thrown into the water, convulsions should ensue, they must be placed in

"* As this is still a moot point, says Dr. Chapman, I shall, in the next number of this Journal, by way of appendix, republish a most interesting paper, by my friend Dr. Yeats, of London, which embraces a series of extracts from the ancient writers on this subject.

a bath of warm oil.* By this means, he says their thirst is quenched, and the hydrophobia removed. This same remedy, administered in a different way, has succeeded lately in New-York: a boy, on whom water was poured from a pitcher, under the care of Dr. Arnell, for two hours and a half, was completely cured of this disease. In this case, however, the convulsions produced by the water, so much dreaded by Celsus, were disregarded, and the patient recovered.† In attempting to cure this disease, common sense, since it is almost beyond remedy, naturally chooses the plans already successful. These remarks, therefore, may not be entirely without their use.

The effects of crowding persons in filthy situations, the question of contagion as produced by a specific and independent principle, or as the result of a concurrence of circumstances, is then discussed without coming to any very definite result. Marks of haste appear occasionally through the essay, as in the following passage:—

"Disease is one of the curses entailed on our fallen condition, and, to perpetuate the contagious and infectious classes, it would seem to be ordained that we should be debarred the power of counteracting the agency by which the seminal principle is regenerated. Nature, in this respect, appears to have taken the same pains as in the preservation of her other works in the animal and vegetable kingdoms. By certain operations not to be controlled by us, the seeds are there elaborated, and such is the fact with regard to contagious and infectious diseases. Could we cure those cases, we should produce a chasm in the order of the universe, which is not permitted. Yet in conformity with the general benevolence of Providence, what we cannot entirely relieve, we are enabled to palliate, and such is the amount of our best endeavours in the contagious exanthemata, and in genuine typhus. The analogy extends further. As in animals and vegetables, so in diseases, certain classes or individuals, from time to time, having completed their destiny, become extinct, and new creations are called into being." Here we would say that, as the practice of vaccination, the suggestion of benevolence, and one of the greatest triumphs of modern medicine, is founded in the practicability of the extinction of one of the most mortal of infectious diseases, it is not therefore in accordance with the following opinion of the author.—"Could

* See Celsus, lib. v. c. 27. 2.

†. See N. York Med. and Phys. Journal for February and March, 1824.

we cure those cases, we should produce a chasm in the order of the universe, which is not permitted."* Medical experience, however, gives a decided negative to the above, as also to the opinion expressed by Dr. Chapman in the following sentence: "yet in conformity with the general benevolence of Providence, what we cannot entirely relieve, we are enabled to palliate, and such is the amount of our best endeavours in the contagious exanthemata, and in genuine typhus," for Dr. Currie, one of the first authorities of the present day, tells us in his Medical Reports that the genuine scarlatina has been extinguished in its incipient state, and the efflorescence on the skin, and soreness of the throat, have been completely prevented by the affusion of cold water. The typhous fever also has been arrested by the same means by Drs. Jackson and Currie.† The practice has also succeeded in this country, under the professor of the practice of physic and surgery in Yale College, Dr. N. Smith.‡ The essay concludes with a variety of facts upon the subject of the collateral causes, which favour the production of epidemics, as depraved aliment, ergoted rye, &c. Electricity is also considered as a probable cause. The appearance of epidemics among the lower animals and among vegetables; the increase of insects, frogs, worms, and snails, locusts, heavy mists, with mildew, the putrefaction of fish, bread, and all sorts of flesh, &c. are mentioned as concomitants, for an account of which the reader is referred to the essay.

Contributions to Physiological and Pathological Anatomy. By John D. Godman, M. D. Lecturer on Anatomy and Physiology.

This number also contains a paper by Dr. Godman, on various anatomical subjects; confirmatory of some discoveries with regard to the fasciæ. The object of Dr. Godman in this paper, is to show that all the fasciæ of the "human body are *three* in number, the *superficialis*, *lata femoris*, and *interna abdominis*, all of the sheaths of the muscles, and all the processes of fasciæ, being formed from them, with the exception of the *temporal*, *palmar*, and *plantar* aponeuroses. The three great fasciæ are all continuous at certain points, and might, without any effort, be considered as one, though their

* P. 390. † See Thomas' Practice, p. 523.
‡ See Med. Record. VII. 383, et seq.

differences of density, &c. are sufficient to justify us in viewing them separately."

These views of the fasciæ, by Dr. Godman, have been demonstrated and published as discoveries, and the profession invited to attend their demonstration. Bichat, whose work on General Anatomy is now become so much studied, has anticipated Dr. Godman on this subject, as appears from the following extract: speaking of the whole fibrous system, embracing the fasciæ and all their varieties, aponeuroses, ligaments, fibrous membranes, capsules, and sheaths, he says, "Though the numerous organs which enter into this classification belong to very different apparatus, though they seem to be spread here and there in the œconomy, without holding together at all, and though all appear insulated, yet they are almost all continuous and connected, so that we may consider the fibrous system like the vascular and cerebral nervous systems, that is to say, as having a common centre for which all the different organs go, that form its divisions."*

Dr. Godman has, then, adopted the opinion of Bichat, and has given us nothing new. He follows Bichat in the fact that the system is one connected at certain points. The origins of these structures are traced from different parts; by Bichat from the periosteum, by Dr. Godman from the superficial fasciæ, the broad fascia of the thigh and the internal one of the belly. These arrangements of course are artificial, convenient in demonstration, as ideas can only be gained in succession, but in other respects of no consequence. Bichat, then, gives the general idea that the whole fibrous system is connected and forms a whole, which forms the basis of Dr. Godman's supposed discovery. Dr. Godman in a former paper stated that the fasciæ of the humerus, after constituting sheaths for the vessels in the same manner as in the thigh, makes up the whole fibrous structure of the capsule of the ligament of the joint; Bichat, in a general table, includes the capsules of the joints, aponeuroses, fasciæ, and observes of them, "The fibrous system should be considered then in a general manner, i. e. as extending itself every where, belonging at the same time to many organic apparatus, distinct in each by its form, but continuous in the greatest number, having every where communications. This manner of describing it, will appear still more natural, if we consider that the periosteum, the general boundary of the different portions of this system, is itself every where continuous, and at the place

* Bichat's General Anatomy, p. 262-3, Boston, 1823.

where the articulations divide it, the fibrous capsules and the ligaments serve, as we have said, to reunite it."* It appears then that Bichat developes the whole views entertained by Dr. Godman: the remainder of the paper is taken up with investigations on the muscle of the thyroid gland, on the practicability of the introduction of a straight catheter into the bladder, also the crooked catheter, all beaten tracks—of the dissection of a case of hernia, and the means adopted in the Philadelphia anatomical rooms for rendering wounds received in dissection, harmless—which are washing the wound with soap and water, sucking and covering it with court plaster; some particulars follow on the means of preserving dead bodies during dissection, for which purpose he prefers whiskey, which is also much used in London for the same purpose. A paper by Dr. Wiltbank, on the action of the heart, follows: the subject is an interesting one, and it is hoped he will continue it: as it is not immediately practical, it does not come within the objects of this Journal. Here it is thought necessary to make a remark: This Journal is confined to subjects immediately practical and directly bearing upon health. Facts from the collateral sciences are not always admitted from want of room, and their minor importance compared with practical and original rare matter, or condensed views of whole subjects.

American Medicine.

In this article, the Philadelphia Journal levels a heavy blow at the University of Virginia. As it is addressed to the feelings and the patriotism of our country, and at the same time, we believe, is calculated to do injury to the medical interests of this city and state from the mode of conducting it, we beg leave to review it.

The editor introduces the paper by alluding to the appointment of Dr. Dunglison to the chair of the practice of medicine in the University of Virginia, and offers his services to aid in exposing the impolicy and injustice of placing foreigners at the head of institutions which are to be supported by Americans; and after disclaiming all personal allusions, proceeds to examine the question solely upon general principles. After this preliminary, we are rather astonished to find in the course of the essay, the founders of the university introduced in a manner calculated to alarm, in a high degree, the feelings and the patriotism of the country, and turn it in disgust from this great undertaking, commenced by our ablest

* Bichat's General Anatomy, p. 263-4, Boston, 1823.

men, and certainly with the purest motives. After some remarks on the necessity of supporting and encouraging native talent, a policy entirely accordant with the views of every good citizen, it is stated that "the professor of political economy and the science of government is also said to be a subject of Great Britain. * * * * We fear he will be an admirer of a political economy and government very different from that most admired by the good people of these United States."

As, during the last session of the University of Pennsylvania, the number of students from Virginia amounted to one hundred and thirty-two, and the above quotation is calculated to give the citizens of that state an idea of unkindness on the part of Pennsylvania, it is thought proper to say, that there is but one opinion among the unprejudiced well-wishers of learning upon the subject in this state, which is, that this great school may succeed, and that its usefulness may be as extensive as the motives were pure which gave it birth. In thus unkindly making the founders of the school guilty of an act of imbecility, though all personal motives are disclaimed, with regard to the gentleman chosen to fill the chair, we are astonished that so odious a personality should be directed against our most valuable citizens, the founders of the school—illustrious by their standing and their services; and after professing to discuss the subject on general principles, these principles should be of a character calculated to injure our state and school, as they render us unpopular not only in Virginia, and more particularly so, as the individual appointed is not a foreigner; for the chair has not yet been filled—it is united with that of law, and we understand a native of Virginia, a celebrated professional character, will most probably occupy the chair.

The motives of our great statesmen are pure and elevated. The establishment of a university, as they are soon about to leave us, is calculated to excite only feelings of kindness and gratitude for this most valuable legacy to our country, and if the measures are disapproved of, it should be upon the basis of authentic information, and the proposal of a better mode, and certainly not by a member of our university, which has received so extensive a patronage from the state of Virginia, larger even than from Pennsylvania itself.

We are told in the latter part of the strictures by the Editor of the Philadelphia Journal, under the motto, "let right be done, though the universe perish," that "the same sentiments operate in England especially to the exclusion of all who are not natives from places of high honour or profit, and

we should imitate in this instance their example."* Was not West the painter a native of the United States? Are not our countrymen Perkins and Leslie, both rising to the highest possible distinction in England? Are not some of their admirals natives of our country? They have a general in India, Ochterlony, who it is said was born in New England. Their great astronomer Herschel was a native of Germany.

It is not only the practice of Great Britain, but of all Europe, to raise foreigners of great merit to the highest stations.

Russia.—Elphinstone, Brown, Gregg, Benningsen, Winzingerode, are Germans; Wittgenstein is a Saxon; Wylie, Rodgerson, Galloway, physicians, are Britons.

Sweden.—The present king and his son are natives of France.

Denmark.—The Bernstoffs were born in England.

Austria.—Count Nugent, honoured with many important missions, is a native of Ireland.

France.—Mazarin and Necker were naturalized subjects of France. The Duke of Feltre, minister of war in that country, was a native of Ireland. Corvetto, minister of finance, was a native of Genoa. The Prince of Essling, the Duke of Dalberg, and Admiral Verhueil, were foreigners high in the employment of France, &c. &c.

The prevailing sentiment of enlightened communities, regards any individual, capable of doing extensive benefits to the world, as their friend, and the friend of human nature, and the accident of birth as by no means sufficient to set aside the duty, the obligation the world owes to such characters. With every crowned head in Europe science is of no country. They see mankind from a great elevation. They appreciate the benefits of science, and they admit its simple votaries to consideration among their citizens, and with good reason. The labours of Kepler, Copernicus, and Newton, conduct the seaman across the ocean; they benefit commerce and give a spring to industry. The manufactures of England owe their superiority to her science, and the power of that country is derived from the same cause. Its benefits are as extensive as the world, as various as our wants, and as lasting as the human race itself. It is therefore useful to every nation to adopt men of science: it is a tribute they owe to their own self-love, to their dignity, to charity, to benevolence, because it is of advantage to the people. But perhaps

* P. 409, Philadelphia Journal, No. 18.

these views are too general; for the Editor of the Philadelphia Journal speaks of the ridiculousness of a stranger teaching Americans the mode of treating the diseases peculiar to their own climate. To this we reply, that the medical works of England, Scotland, France, Holland, Germany, are published in America, and they are considered by all Americans as valuable and instructive. The Editor of the Philadelphia Journal himself has used Dr. Cullen's work on the Practice of Physic as a text-book, and the world regards all the works of Cullen as valuable; and for this reason—diseases are the result of natural causes, and as the seasons and mode of life in Europe present a great variety of morbid agents, books on the diseases of that section of the globe, which are accurate transcripts of nature, are valuable in every country. The true and solid policy, it is believed, is that which opens the door to emulation from all quarters: it accords with the principles of our laws of naturalization, and as it gives great encouragement to the learned and the skilful of all nations, it is a policy which will recommend our citizens to success among the nations of the old world, and enable us to benefit by their experience and wisdom: it puts all men on the footing of industry and merit, the only true basis on which any thing respectable can rest, whether it regards nations or individuals. We understand it was the fear of doing injury to our other schools, by inviting our citizens already employed in them as professors, which induced Virginia, in founding her school, to invite learned men from abroad. The appointments are, however, not restricted to foreigners, for we understand there are also several American professors employed in the school. After disclaiming all personal motives against the strangers invited by Virginia, the following remark is added: "We regret the unpleasantness in which they will be placed, especially as it is probable the American Medical Societies throughout the country will protest against this act of injustice." Is this the language of benevolence, of charity, or even decorum? A stranger in Europe, with but a common introduction and qualifications, is received with favour, with urbanity, and kindness. What authority, then, what proof has the editor of the Philadelphia Journal of these hostile dispositions in the medical public of this nation? Is not the recommendation of Messrs. Jefferson and Madison, two of the most useful men of our revolution, sufficient to secure respect to our foreign friends from this nation? What will our great statesmen at Washington think of Philadelphia, when a judge or an ambassador is to be chosen

from among the American people? Will our distinguished citizens bereceived with favour? It is well known that every man's conduct is viewed on these occasions in every possible light, with the greatest scrutiny, but particularly as to those great principles which identify him with the policy of kings and the nations of the earth, and qualify him for acting in an extended sphere of public duty, in which the slightest aberration or illiberality may compromise the interests, the character, and the happiness, of a whole people. The character of our city, of our state and university, and the laudable emulation of our public characters to more extended usefulness, then, require that a protest should be made against feelings so hostile to our interests, and induce the conviction that the sentiments of the review are by no means national; that these gentlemen will be received by the people in a manner consistent with the dignity of a great nation; as the friends of the United States, and of our revolutionary patriots, whose names are reverenced from Cape Horn to Labrador—whose great labours excite the admiration of the world, and make it an honour to be called a citizen of the United States.

We understand that great offence has been taken, because it was stated in the last number that the essay on prolapsus uteri contained nothing new. The pain in the side, as the symptoms of the disease affect the whole intestinal canal, stomach, diaphragm, navel, loins, back, &c. and are also sympathetic, irregular, and nervous, we believe is not a sufficient pretension to discovery.* We request the author of that paper to do us the favour to read the sentence of his essay beginning line nine, and ending line thirteen, page 145, No. 17, of the Philadelphia Journal, and then the symptoms of prolapsus, in page 104-5 of Baudelocque's System of Midwifery, published in Philadelphia in 1807 by himself, and he will have data enough to convince him that the temper of the review was mild, as we believe it was just.

* See Baudelocque, 1807, p. 104–5. Burns, p. 117. Ed. 1822. Clarke on the Diseases of Females, p. 77. Lond. 1814.

ANALECTA.

1. Dr. Formey's *Treatise upon the Pulse.*—The distinguished author of this work considers the heart to be the principal source of the pulse, which, however, he admits, owes its varieties of hardness, softness, fulness, smallness, &c. to the peculiar tonicity of the arterial coats. The heart, during its systole, propels the blood into the arterial system, which, by the tonicity and elasticity of its coats, resists its distending power, hence the impulse, that is communicated to the finger, constitutes the pulse, which does not depend upon any increased diameter of the arterial tubes. Dr. F. considers that the endless varieties of the pulse during health and disease, may be easily accounted for, by, 1st, the vigor, rapidity, and frequency of the systoles of the heart, and the size of the column of blood thrown on by each systole into the aorta, and, 2d, by the various modifications of the tonicity of the arteries acting upon the blood. The tonicity of the arteries themselves, as well as the action of the heart, may be influenced by the peculiar state of the capillaries.

Two very singular and interesting cases of constant sleep during several months of each year, for many successive years, are communicated in this treatise. The subjects were an old man and woman, in both of whom the pulse was remarkably slow, full, strong and regular; they awoke every day or two for a few moments for the purpose of food, drink, and voiding the excretions; but if these natural calls were not immediately indulged, both individuals slept again till their usual period of waking. In both the above cases, the intellectual faculties were not perverted or deranged.—*Bibliothek der Practishen Heilkunde*, May.

2. *Dissertation upon the Origin of Variola.* By Professor Sachs.—We have here a most singular opinion announced concerning the antiquity and origin of small-pox, which, our author states, existed among the Greeks and Asiatics in the most remote times. He believes that variola originally depended upon its peculiar virus arising from the combined action of leprosy and acute fevers, (probably typhus) which, by a mutual union brought forth the monster that has so long and so cruelly depopulated our globe. There are no cases related in this dissertation, of the disease happening at the present day, from fever and leprosy.—*Ibid.* June.

3. Dr. Lorinser's *Experiments and Observations upon the action of Ergot.* To five adults dr. ii. of ergot were administered and followed by pain of stomach and head, vertigo, nausea, vomiting, dryness of the fauces, ptyalism, general uneasiness, anxiety, heat, thirst, and colicky pains of the belly; these symptoms in each case disappeared after frequent liquid evacuations. Ergot baked to brownness lost all its pernicious qualities. A considerable quantity being administered to a fowl, occasioned great weakness and insensibility, a partial blueness of the edge of the comb, and dilatation of the pupil; on the 4th day, the crowing and cackling ceased, the pupil became entirely insensible, and the blueness of the comb became darker and more extensive. On the 7th day the animal died; inflammation was observed in the bowels; the heart, lungs, liver and large vessels were filled with a dark fluid blood. Dr. Lorinser considers the numerous cases of raphania which have prevailed in particular parts of Germany, were caused by the use of spoiled rye, since he has remarked that the disease has been limited to rye countries, and those seasons in which the crops

were inconsiderable and bad. The reviewers are not at all disposed to adopt Dr. L's etiology of raphania, and they deny that all epidemics of that disease have been confined to rye countries. No case of raphania has ever been observed after the medicinal use of ergot, a circumstance very extraordinary indeed if we are to believe it capable of producing that disease.—*Ibid.* July.

4. Dr. Wesener *upon the good effects of Cod-liver oil in Rheumatism and Gout.*—A woman between 40 and 50 years of age, had been afflicted with rheumatism and gout to such a degree that she had not been able to walk for some years. She suffered constantly most excruciating pains of the back and limbs, which had resisted all the usual remedies. Our author determined to try the effects of liver oil in this case, and ordered his patient to take a table spoonful of it four times a day, drinking half a cup of coffee after each dose, to prevent nausea. By the time four bottles of the oil were consumed, the patient had entirely recovered the perfect use of her limbs. The same remedy was exhibited to two other persons with complete success in one case; the failure in the other, Dr. W. attributes to the nausea and vomiting the oil produced, so that the patient could not continue its use.—*Jour. der Pract. Heil.* May.

5. *Hypertrophia of the Brain of Children,* By Professor Hufeland.–In several cases of death from apparently severe attack of hydrocephalus acutus, professor H. has found upon examination very little serosity in the ventricles of the brain, but discovered that this organ had acquired a bulk disproportionably large in comparison with the cranium, which was not sufficiently capacious to contain the brain without compressing it. As soon as the superior part of the cranium was removed, the brain projected fully half an inch beyond its edge throughout its circumference. This disease arises from too rapid an increase of the brain, after the consolidation of the fontanelles, thereby preventing the yielding of the cranium to the increasing size of the brain.—*Ibid.*

6. An epileptic, who has been taking the nitrate of silver for seven years, is now as black as a negro; the hair, nails, tongue, lips, and sclerotic coats of the eyes, are all quite black.—*Ibid.*

7. *Case of Pervious Urachus after birth.* By Dr. Bokh.—The subject of this case, a male child nine months old, evacuated its urine by the urachus, as well as the urethra. The umbilicus was filled and surrounded by a fungous excrescence, from the centre of which the urine passed off, particularly when the child cried or was in a horizontal position.—*Ibid.*

8. *Remarkable Action of Iodine upon the Mammæ.* By Professor Hufeland.—A young woman twenty years of age, strong and healthy, used for the cure of a bronchocele the tincture of iodine during six months. The disease yielded to the iodine; but at the same time the breasts, which were previously quite large, diminished to such a degree that there remains scarcely a trace of them. The author has seen two other cases of atrophy of the mammæ from the same cause, and he warns us against the inconsiderate use of iodine, which, it appears beyond a doubt, is capable of producing the absorption of natural and healthy parts.—*Jour. der Prac. Heil.* June.

9. *Of the Presence of Water in the Lungs of Drowned Animals.*—Professor Mayer of Bonn, performed a variety of experiments, which appear to have been conducted with much precision and fairness, with the view of deciding the long disputed question concerning the presence of water in the bronchiæ and its ramifications in animals destroyed by submersion. Three kittens and one puppy were drowned in water at a moderate temperature; in all of these, the lungs were destended more or less with the water. Three kittens and one guinea-pig, were drowned in water coloured with vermillion, and each animal was retained under the surface, with its head considerably lower than its body, in which position they

were withdrawn from the liquid after the extinguishment of life, so that no fluid, by its mere gravity, could have entered the trachea, after the animal ceased to live. In all these cases the coloured water was found in the most minute of the bronchial ramifications. Two kittens were immersed in a solution of the prussiate of potash, for five minutes, when they were withdrawn, still alive, and their lungs, upon immediate examination, were found containing the solution of prussiate of potash, which was tested by the muriate of iron.—*Hufeland Jour. der Prak. Heil. Sept.* 1824.

10. *Hydrophobia.*—Dr. Sieber of Dresden, who has devoted much time and attention to the study and observation of hydrophobia in the human species, states that the small blisters described by Marrochetti, as invariably appearing under the tongue, are entirely absent in many cases of fatal termination, and that when they do appear and are destroyed according to Marrochetti's plan, the disease is no less destructive.—*Hufeland Jour. der Prakt. Heil. Sept.* 1824.

11. *Compression in Ascites.*—Dr. Godelle was led to compression of the abdomen as a mean of curing ascites, from observing that it prevented, at least for a time, the re-accumulation of fluid in the cavity of the peritoneum, after the operation of paracentesis. The following is the case brought forward in illustration of this anti-hydropic agent.

Vorgier, a shoemaker, 18 years of age, of feeble constitution, and subject to nasal hæmorrhages, had the natural small-pox, and afterwards the measles, in the beginning of 1823. On the 15th of April, 1824, after a long and fatiguing journey, on a cold and dry day, he found himself unwell, and affected with lacinating pains at the pit of the stomach, and over the abdomen. Diarrhœa succeeded, and afterwards dysury. He neglected himself, and the diarrhœa continued, attended with so much debility, that he was obliged to seek refuge in the Hotel Dieu, on the 5th of July. At this period he had fever, vague darting pains at the epigastrium, painful tension of the belly, thirst, high-coloured and scanty urine, dry burning skin, small quick pulse, frequent cough, without expectoration. There was obscure fluctuation on percussion of the abdomen.

It was pronounced that the patient had chronic peritonitis, with incipient effusion. Leeches to the epigastrium and hypochondria—nitrous mucilaginous drink—fomentations—pediluvia, &c. The patient had some appetite. These means were varied or reiterated, according to circumstances, for fifteen days. He could not bear digitalis. The effusion increased daily. He left the hospital on the 21st July—but returned on the 3d of August, in a still worse condition. The countenance was altered—cough constant—belly swelled, tense, and painful—urine scanty and red—skin dry—diarrhœa—no appetite. Diuretics and other means were tried, but the malady increased, and the abdominal swelling incommoded the breathing so much that the surgeon was on the point of performing paracentesis, when Dr. Godelle thought he would give compression a trial. A bandage was first applied, but that was always slipping. A broad belt, with lacings like ladies' stays, was next employed, and answered well. Instead of being incommoded by the pressure, the patient breathed easier, and had less pain. Pressure was made on the 15th, and by the next day the belly had sensibly diminished. This diminution daily made progress, and by the 20th, or fifth day from its first application, the patient's abdomen was reduced to its natural size, without exhibiting any symptoms of fluctuation. It is proper to state, however, that during this time, digitalis was given in doses of *four grains daily.* "Under the double influence of these agents, the urine flowed in enormous quantities."—*Johnson, April,* 1825.

12. *On the Galvanic Phenomena which accompany the Acupuncturation.*—M. Pelletan has ascertained, by means of the galvanometre of M. Becquerel, that perceptible quantities of this fluid are always disengaged by a needle plunged into a part of the human body affected with pain. The

quantity is extremely small; perhaps, says M. Pelletan, not equalling the hundredth part of what is obtained from a single plate of a common voltaic pile. Nevertheless its effects may be rendered sensible; for which purpose, it is sufficient to make the needle inserted into the affected part communicate with the mouth, by means of a metallic wire. M. Pelletan thinks these galvanic phenomena unconnected with the curative effects of the operation; which opinion is founded upon the circumstance of the relief obtained by the patient being in no case in proportion to the quantity of fluid disengaged; and that very marked effects result from the acupuncturation, even with a needle terminated by a non-conductor. No perceptible difference presents itself with regard to the degree of relief between the use of needles ending in non-conductors, and those so arranged as to allow the electricity to pass off. It is asserted by M. Pouillet, that no galvanic phenomena present themselves when needles made of platinum or gold are employed; from which he infers that, in the cases alluded to, the effects were the result of the oxidation of the metal. M. Pelletan has seen incontestible success follow the use of the acupuncturation, particularly in rheumatic affections.—*Bulletin des Sciences Medicales*, February.

13. *Disappearance of the Mammæ, caused by the Use of Iodine.*—M. Hufeland relates among other examples of this misfortune, that of a girl, twenty years of age, naturally of good constitution, who used for about six months the tincture of idione, for the removal of a goitre. It produced the desired effect; but she perceived that the mammæ were depressed, and had diminished in size. Notwithstanding the discontinuance of the iodine, this wasting progressively advanced, so that, at the end of two years, no vestige of the mammary gland remained. The same author has known two other analogous instances.—*Journal der Prakt. Heilkunde.*

14. *Ophthalmia cured by Acupuncturation.*—M. Cloquet lately presented to the Royal Academy of Medicine the case of a young woman, who had been affected, for a very long period, with chronic ophthalmia of the left eye, with puriform discharge from the eyelids. The eye was constantly closed, and the affection complicated with acute pain in the orbit and in the head. A variety of means had been employed without success, when M. Cloquet had recourse to acupuncturation. He inserted two needles in the temporal region of the same side: they caused but little pain, and at the end of a few days the inflammation had sensibly diminished; but it was especially the pain in the orbit and head, which disappeared almost instantly. In a few days they again returned. He then introduced another needle into the middle of the forehead, and left it there. The eye speedily improved, remaining open; the pain disappeared. There existed at the same time an eruption on this side of the face, which was almost entirely removed.

M. Husson communicated to the same body the case of a very stout man, who was admitted at the Hotel Dieu for an ophthalmia of the right eye, which was entirely closed and extremely painful. This inflammation, which had resisted during eight days all the most active remedies, disappeared very rapidly on the introduction of two needles into the thick part of the eyebrow on the the right side.

M. Naquart afterwards communicated the case of a young lady, affected with a painful ophthalmia of long standing, in which the acupuncturation had been practised twelve days before, without any benefit resulting. It appears, however, that, from the modification in the operation employed, it rather resembled the introduction of a seton, than the acupuncturation properly so called.—*Revue Méd.* Mars.

15. *Sudden Death During an Operation.*—A most melancholy event happened lately in the surgical practice of M. Dupuytren, which involves some curious physiological and surgical considerations. On the 19th November, 1822, a fine young woman (Alexandrine Poirier) came to the Ho-

tel Dieu, for a tumour of some size, situated on the posterior and lateral part of the neck. From its hardness, renitency, and insensibility, M. Dupuytren ascertained that it was of a cellulo-fibrous nature, and proposed its removal, to which the young woman consented. The operation was performed on the 22d of November, with all the skill and dexterity of that celebrated surgeon. No arteries were cut that required the ligature, and consequently, there was very little hæmorrhage. Neither were there any muscles or large nerves divided. Just, however, as he was proceeding to separate the last shreds of attachment, and turn the tumour out, he was surprised to hear a somewhat prolonged hissing noise (sifflement prolongé) similar to that produced by the re-entrance of air into a vessel from which it had been exhausted. The operator stood for an instant astonished, and observed, that, were it not for the distance of the knife from the air passage, he would have thought that he had made an opening into it. He had scarcely said the word, when the young woman cried out that she was dying, and instantaneously dropped down on the floor a lifeless corpse, to which all their efforts could not restore the slightest symptom of animation. This happened in the presence of nearly 400 spectators, and the body was examined next day, in the presence of full as many, with the most rigorous minuteness.—Every part of the body was carefully dissected; but there was not a particle of morbid structure any where to be found. An examination of the heart, however, disclosed the cause of the melancholy catastrophe. The right auricle was distended like a bladder with air, which rushed out when cut open, without any admixture of blood. Fluid blood was found in the other cavities of the heart, as also in the different vessels. Great quantities of air were found in all the vessels. There was no other unnatural appearance in any part of the body.

We have not the smallest doubt, that Dupuytren was perfectly correct in his conclusion, that air had rushed in through one of the veins of the neck, and thus caused instant death. It is, perhaps, the only case on record of the kind, and so unlikely to happen often, that it can be no serious objection to any operation on the neck or other part of the body. We think it is a pathological fact, however, which bears on the physiology of the circulation. It proves that the heart acts as a sucking as well as a forcing pump, otherwise air would never have passed from a cut vein in the neck down into the right chambers of the heart. It is highly probable, that, in consequence of the morbid state of the parts, the mouth of the cut vein had remained patulous, and thus readily admitted the air.—*Johnson*, Jan. 1825.

16. *Great Tumour removed from the Neck, by Dupuytren.*—Our readers are in possession of the facts attendant on the melancholy case of a young woman operated on by M. Dupuytren, where the introduction of air by a vein caused instant death in the operation room. The case now to be stated, was sent, as a set off to the other, to the Royal Academy of Medicine, and read at the same time. The patient Madame Thiebault, 21 years of age, was a favourite of the Duchess of Berry, and about two years previously perceived a small tumour on the top of the right shoulder, which enlarged to such a size, that M. Boyer was consulted. He advised that no operation should be performed, and prognosticated that the removal of the tumour would be fatal. This advice not being relished, M. Dupuytren was called in. He found an enormous tumour occupying the posterior and lateral part of the neck, on the right side, extending from the mastoid process to the inferior angle of the scapula. The tumour was hard and unequal on its surface. It was every where firmly adherent to the neighbouring parts. The skin covering it was tense, and full of dilated veins. The patient experienced sharp pains in the tumour, and was unable to use the right arm, in which there was a sense of unpleasant formication.

Taking into consideration the age and constitution of the patient, the

rapid growth of the tumour, and the inevitable fatality of the disease, if left to itself, M. Dupuytren magnanimously undertook its removal, and the lady as magnanimously submitted to the terrible operation, which was performed on the 27th September, 1822, in the following manner.

M. Dupuytren made an incision, ten or twelve inches in extent, over the greatest diameter of the tumour—that was, from the top of the cervical column to the acromion scapulæ. The trapezius muscle being thus exposed, was divided, and the tumour itself came in view. By a long, painful, and we need hardly say, dexterous dissection, during which many arteries were cut and tied, this enormous tumour was turned out by main force and free incisions. It fell on the ground and bounded like an elastic ball. Several arteries, which gave out blood freely, were secured, and the immense wound was dressed. The intrepid lady never complained during this terrific dissection, but talked calmly to the surgeon all the time. In the night of the same day the lady was seized with pain in the throat, with difficulty of swallowing; but these symptoms were removed by a moderate bleeding. A kindly suppuration became established—granulations shot forth—the limits of the wound decreased—and the lady got perfectly well, and has remained so.

The tumour weighed six French pounds—was of a fibro-cellular texture—and contained some intermixed portions of albuminous lymph. In some points, the tumour appeared to be taking on the carcinomatous character.

The event falsified the prognosis of M. Boyer; but, probably, there were few other surgeons than M. Dupuytren, who would have undertaken so terrible an operation.—*Ibid.*

17. *Hæmorrhage into the Bladder.**—A gentleman, 73 years of age, had been affected, for many years, with diseased bladder, apparently disease of the prostate gland, and attended with the usual symptoms, frequent inclination to make water, ischuria, and sometimes complete retention, requiring the use of the catheter. About the end of the year 1821, the disease became aggravated, the urine occasionally tinged with blood, and a lithic deposit in his water. The prostate gland, on examination, was found to be much enlarged. On the 26th of February, 1824, he was seized with retention of urine, and much difficulty was experienced in introducing a catheter, when a great deal of urine, mixed with some clots of blood, was drawn off. After this, he was pretty well for a few days, requiring, however, the catheter. On the 2nd March, he was suddenly seized with great pain, and sense of distention, although the urine had only been drawn off a quarter of an hour previously. It was now evident that blood was effused in the bladder. No effort could remove this *per vias naturales*, and Mr. Hutchison proposed to Sir Astley Cooper, to cut into the bladder above the pubes. This was done by Mr. H.——, and the coagula of blood scooped out with a table spoon. The patient went on remarkably well for three days, the water being discharged through a syphon in the wound. It was found, however, on examining the interior of the bladder, with the fingers, after the operation, that there were two fungoid tumours, projecting into that organ, one on each side of the urethra, and, from these, it was naturally supposed the blood had come. On the fourth day, his spirits and appetite failed—the wound assumed a bad appearance, and he sunk on the 6th day from the operation.

Cases of this kind are rather rare. It is the first which our author, and the second which Sir Astley Cooper had seen. Leave was not obtained to open the body.—*Ibid.*

18. *On the supposed Increased Prevalence of Insanity.*—An interesting Memoir has been read in the Section of Medicine in the Royal Academy of

* Mr. A. Copland Hutchinson. Med. Repos. Aug. 1824.

Medicine of Paris, by M. Esquirol, in answer to this question:—*Are there more madmen in the present day than there were forty years ago?*

M. Esquirol, whose experience has, it is well known, been so considerable, answers this question in the *negative;* and maintains, that in proportion to the population, the number of maniacal persons has *not* increased. He remarks, that from 1786 to 1792 the whole population of France was agitated by political fanaticism and the exaltation of all the social passions; yet that in 1792 there were only 1009 lunatics in the Parisian establishments—the same number as in 1786: and there was no increase observable in the south of France, where the fury of the passions prevailed the most; as at Lyons, Marseilles, and Nismes. Similar observations are applicable to Spain and Italy. But he adds, that whenever any disease becomes the object of great attention, it comes to be considered as more frequent, in the same manner that the number of deaf and dumb was found to be so unexpectedly great when the Abbé de l'Epée attracted national attention to them. An effect precisely similar appears to have been produced, at least in France, by M. Pinel's Treatise on Mania; and the general improvement which followed in the treatment of this class of maladies caused a number of individuals to be sent to public establishments who would have been scattered over the country and in obscurity. And thus M. Esquirol concludes that the increased number of lunatics is only apparent. He indulges in some very allowable feelings of complacency on reviewing the improved treatment of the insane in the French establishments. In a report of the state of the Paris hospitals in 1816, it was stated, that from the first January, 1804, to the first January, 1814, 3943 lunatics of both sexes were admitted, of whom 2149 were sent out cured, that is to say, more than half the number: a result calculated to give some consolation to those families of which any member may unfortunately be the subject of this most dreadful of all calamities.—*Rev. Méd., Nov.* 1824.

19. *Treatment of Hernia.**—Twenty-four cases of strangulated hernia have presented themselves to Mr. Yeatman, and all been treated with success. Twenty-one of these were reduced by the taxis and remedial measures: while three were operated on at an early period of strangulation. Fifteen of the twenty-four were cured by venesection—the application of cold—and the taxis—six cases by the above means, in addition to five grains of opium, exhibited at one dose internally. In all the cases, the gut had been strangulated from one to five hours. Each patient was immediately bled *ad deliquium*—then placed on the floor of the room, on a blanket, with pillows to raise the pelvis, and the taxis managed in the usual way. Pails of cold water, with ice, or muriate of soda and ammonia dissolved in water, were placed by the side of the patient, and poured on the hernial tumour, at the distance of two feet, from the spout of a large tea-pot, or small tea-kettle, for a space of time varying from an hour to an hour and a half—occasionally employing the taxis for a few minutes together. When this mode of treatment failed of success, five grains of opium were given in each case—the patient put to bed—and the taxis had recourse to during the profound sleep that followed. The above were the only means employed by our author—and always with success. With respect to the operation, he considers it disgraceful to a surgeon to find the contents of the hernial sac in a state approaching to gangrene—when he might have operated sooner. But, says he, all the remedies which have ever been recommended, are generally put first in execution, and many hours and days are thus suffered to elapse "in imbecile and reckless attempts to return the inflamed, enlarged, and strictured parts into the abdominal cavity."—*Johns.* April, 1825.

20. *Iritis.*†—We can only touch on two of the points discussed by Dr.

* Mr. J. C. Yeatman. Med. and Phys. Journal, Jan. 1825.

† Dr. J. A. Robertson. Ed. Journal, Jan. 1825.

Robertson—namely, the etiology and treatment of the disease in question. He observes that almost all authors have been surprized that "mercury both causes and cures iritis," and so they might, he thinks, were this a fact. It appears to him that "mercury *alone, never* causes the disease." It may act as a *predisposing*, but not as an *exciting* cause. Mercury renders the constitution more liable to the impressions of *cold*—this last being the most frequent cause of iritis. The following are the facts on which our author grounds his conclusion.

"1st. The greater number of patients that I have had an opportunity of seeing affected with iritis, while their systems were under the influence of mercury, were conscious of having been exposed to cold shortly before the attack.

"2d. In those cases, other effects, considered as arising from cold alone, were present, such as an increased discharge from the nares and fauces, rawness of the throat, &c.

"3d. Inflammatory affections of other organs are frequently caused by exposure to cold, under similar circumstances; as inflammation of the lungs, bronchiæ, and intestines, none of which have ever been considered as produced by mercury alone; and lastly,

"4thly. In the greater number of iritic cases that have been under my care, the patients neither were, nor had lately been under the influence of mercury, and nearly all of them attributed the complaint to cold. Besides, if mercury caused iritis, this disease ought to have been of more frequent occurrence some years ago, when ten times as much mercury was used as now a days: but I do not find that this was the case." 34.

Treatment. At the commencement of the attack, blood-letting is the first remedy to be employed—the quantity being proportioned to the effects produced on the system, and on the disease. When the system has been sufficiently lowered, we should have recourse to topical bleeding and blistering.

"The medicine, however, that is chiefly to be relied on in iritis, is mercury. And to Dr. Farre, who was the first in this country who introduced the use of mercury in iritis, we are indebted for this most important improvement in the treatment of this disease. But the use of this medicine in iritis was known to Bëer, Benedict, and other German oculists, long before its introduction into this country. In iritis, the system is to be affected with mercury as rapidly as possible; for this purpose, in severe cases, I frequently order two mercurial pills to be taken every hour combined with opium, if they affect the bowels with griping or purging. The supra-orbital region is to be well rubbed twice a day with mercurial ointment, mixed with powdered opium. The relief from pain which the patient often experiences from the latter application is quite astonishing. As soon as the system becomes affected with mercury, the patient experiences a very considerable abatement of the pain and feeling of fulness and distention of the eye. The sight becomes clearer, and the irregular and contracted state of the pupil and the effused lymph begin to disappear. The redness of the external parts diminishes, and the iris assumes its natural colour. These effects are almost invariable; indeed, I do not remember a single case in which the pain was not relieved as soon as the system was affected." 36.

When lymph has been effused, mercury is indispensible—it is the only remedy which can be of any service. It is to be aided by the application of belladonna, or hyosciamus externally.—*Ibid.*

21. *Ulcers of the Cornea.*—When these were of a spreading nature, our author paid particular attention to the general health, as in most cases they depended on it. They principally occurred in weak and delicate constitutions, or where the system had been much lowered by bleeding, purging, &c. In such cases, much benefit was derived, after clearing the primæ viæ, from bark and mineral acids, and gently touching the edges of the ul-

cers with a piece of caustic scraped to a fine point. When the ulcers were very irritable, he directed the eye to be held over the vapour of boiling water, to which were added some tincture of opium and camphor mixture. This generally afforded much relief.

At the conclusion of his ophthalmic report, Mr. Melin has the gratification to add, that out of 568 cases of disease, there was not an eye lost, nor one impaired, that was not irrecoverably so before admission into hospital. In thirty-seven cases of operation, only one could be said to have fairly failed. This report forms a good appendix to the ophthalmic article in this number of our Journal, furnished from the works of Dr. O'Halloran and Mr. Hewson.

22. *Recto-vesical Lithotomy.*—This operation was first practised in France, where it has been very coldly received. It was imported into Italy, and there it seems to take root and thrive. It has been practised at Turin, Genoa, Milan, Pisa, but in different modes. Some surgeons have abandoned it after trial—others have written against it on theoretical grounds, and without trial—while the greater number who have performed it, give it the preference to either the lateral or high operation. There are some solid and important facts connected with this subject, which are not undeserving of attention. The following are some of them. Of sixty-nine who have undergone the recto-vesical operation, thirteen have died, or rather less than one in five. Of these thirteen, seven are asserted to have died of affections totally independent of the operation, fifty-six have been cured —but out of these fifty-six there are eight with fistulous openings. Of these eight, one had the lower part of the bladder (le bas-fond de la vessie) incised. Forty-eight therefore have been cured without fistula, in four of which the "bas-fond" had also been injured. The period of recovery varied from ten or twelve days to seven months. Seven were cured between the eighth and fifteenth days—twenty-eight between the fifteenth and thirty days—ten between the thirtieth and sixtieth days—and eleven between the sixtieth day and seven months.

The principal advantages of the recto-vesical operation are considered to be—the impossibility of wounding the pudic artery—the absence of hæmorrhage during and subsequent to the operation—the facility of extracting the largest calculi—the little risk of urinous infiltrations. On the other hand, the serious inconveniences of this operation are candidly stated, and are as follow:—the wounding of the seminal vessels—and the chance of recto-vesical fistula. It is yet to be proved that the *first* accident entails impotence.* In respect to the *latter*, it is said that it will be very rare where the incision does not go beyond the limits of the prostate gland. It will be frequent, but not *inevitable*, in those cases where the incision reaches the lower part (bas-fond) of the bladder. In the lateral operation, there is little danger of either fistula or wound of the seminal vessels; but then there are other dangers and inconveniences, viz. 1mo. Injury of the rectum—an accident by no means extremely rare, even in the hands of the most expert operators. 2ndo. Hæmorrhage, examples of which are, unfortunately, but too frequent—and generally mortal where the pudic artery is divided. 3tio. The impossibility of extracting a very large stone by the lateral operation. 4to. The greater mortality by the lateral than by the recto-vesical operation. This parallel M'Breschet has drawn from the memoirs of Vacca and others in Italy, and he comes to the conclu-

* We know an instance where, after a successful lithotomy in the lateral way, the seminal vessels have been obliterated, and all communication with the urethra cut off. The inconveniences are rather distressing, though the gentleman is upwards of seventy years of age. It is probable that inflammation about the verumontanum was the cause of this occlusion of the seminal vessels.—*Rev.*

sion that—the recto-vesical operation is, or appears to be, preferable to the lateral—and that it ought to be more frequently practised than it now is in France.—*Archives Generales, Juillet*, 1824.

P. S. As many of the readers of this series may not be acquainted with the method of performing the recto-vesical operation, we shall give a very short description of it in this place, in the words of a trans-atlantic writer, Dr. Muter, of New York, formerly of Wisbeach in Cambridgeshire, who has published a little work on the subject of Lithotomy, which does much credit to his judgment as an ingenious surgeon. There are two modes of performing this operation, one of which may be called the high, and the other the low recto-vesical incision. The former, we believe, is now seldom practised. It consists in an incision made through the rectum and bladder, above the sphincter of the one, and prostate of the other, into the slit or groove of the staff, in the place where the bladder is punctured for the suppression of urine—cutting a little to one side, to avoid wounding a small artery which runs along the middle of the anterior surface of the rectum.

"There is another situation, says Dr. Muter, towards the verge of the anus and perineum, where a somewhat different operation may be performed, and a very large stone extracted. If I have maintained that a stone of small size only ought to be extracted by the last, by this I now assert that *only a large one* should be extracted."

"We are told by Professor Vacca, that the fæces may be excluded from entering the bladder, by this mode of forming a valve of the rectum, opposite the wound in the prostate and neck of the bladder. The incision is to be made anterior to the prostate, and carried through the rectum, urethra, and sphincter of the anus, an inch into the perineum, cutting along the slit of the staff. The surgeon then runs the knife along the groove in the staff, and dividing the prostate and cellular membrane, leaves the rectum uncut. This valve of the rectum extends about an inch lower than the opening into the bladder." Dr. Muter observes, that it must be exceedingly difficult to avoid including the rectum also in this incision, in which case there would be no valve. And, even granting that the surgeon succeeds in forming the valve, Dr. M. thinks that it would be in the way of extracting a large stone, forming a stricture of the wound, and impeding the exit of the calculus. Besides this, it would, he thinks, be very liable to be torn. The above objections of Dr. Muter, let it be remembered, are not from actual experience of their validity, but from reasoning on the subject.—*Johnson*, April, 1825.

23. *Extinction of Fire.*—The Parisian Council of Health report, that powdered sulphur, thrown on the fire in the grate, extinguishes, very quickly, a fire in the chimney above. A pound of the substance, sprinkled on the fire, is said to be quite sufficient for this purpose.—*Ibid.*

24. *Italian Remedies.*—It is not in modern times alone that the Italians have surprised their brethren by the large doses of their medicines. Some 90 years ago the physicians of that country took it into their heads that cold water was the sovereign remedy for fevers and other complaints. They therefore gave from 15 to 25 pints of iced water daily to each patient labouring under fever, small-pox, dropsy, &c!—*Commerc. Nov.* 1736. *Hebd.* 8. Tartar emetic is now the catholicon there.—*Ibid.*

25. At a sitting of the Section of Surgery in the French Academy of Medicine, M. Aumont briefly related the case of an officer on whom acupuncture of the abdomen was performed for the relief of pains which had resisted all other means. The first needle was introduced two fingers' breadth from the umbilicus, and caused severe pain. A second needle was inserted at the same height, and along the inner border of the rectus muscle: the second puncture was scarcely made before the patient fainted; and when he recovered his consciousness he complained of tormenting pain, which was soon accompanied by fever and a distressing heat in this

region of the abdomen. This state lasted several days; and when it had yielded to antiphlogistic treatment, the original painful disorder had not suffered the slightest diminution.

On this case being mentioned, M. Béclard, who was present at the sitting, observed that syncope was rather a frequent consequence of acupuncture, and that he had recently witnessed it in a patient after five needles had been inserted into the deltoid, on account of very severe rheumatism in the shoulder, and which had since completely disappeared. He further remarked, that the operation of acupuncture was not to be looked upon as absolutely exempt from accident; and cited the case of a patient into whose leg one needle had been introduced for the relief of very acute nervous pain. The introduction of the needle was painful, and had no sooner been effected than the patient fell into a prolonged syncope, on the cessation of which furious delirium supervened; the cerebral excitement, however, gradually abated, and the patient remained the rest of the day in a state of torpor, which gradually wore away. An abscess subsequently appeared in the seat of the acupuncture.

26. *Case of Accidental Poisoning.*—'On the 29th of February, at nine in the morning, M. Thénard was lecturing at the Polytechnic School on the subject of the nitrates, and particularly the nitrate of mercury. He had by him two glasses of similar form, one filled with *eau sucrée*, the other containing a *concentrated* solution of *corrosive sublimate*, and by mistake he swallowed a mouthful of the latter. Immediately perceiving its horrible taste, he called for some albuminous water, and, whilst waiting for it, repeatedly drank tepid water. Some whites of eggs were procured, mixed with water, and administered five minutes after the accident. Up to this time, notwithstanding irritation of the fauces and uvula, no vomiting had taken place: but very soon after the albuminous water was given, vomiting came on, and what was thrown up had the characters of albumen coagulated by corrosive sublimate: in fact, the liquid was white, flocculent, and resembling albuminous water into which dissolved perchlorate of mercury has been poured. M. Dupuytren arrived when the albuminous water had been frequently taken, and vomiting had occurred four or five times. M. Thénard then found himself so much relieved, as to say to M. Dupuytren that *he was cured.* At nine in the evening M. Thénard had vomited more than twenty times, and found himself '*à merveille;*' he never had any pain of the epigastrium or in the intestinal canal. He had a copious stool ten minutes after the poisoning, and before he took any purgatives.'

The above particulars are given by M. Robinet, who reminds us that M. Orfila was the first to point out albumen as the antidote of corrosive sublimate. M. R. insists strongly on the advantages of albuminous water, which being at once mucilaginous, emetic, and antidotal, prevents every possible evil.

Although no new information may be given to the English reader in the details of the latter case, it is not therefore to be looked upon as useless. The repetition of valuable truths is scarcely less useful to mankind than their discovery: it has often been observed, that we require to be reminded more than to be taught. When poison has been accidentally swallowed, the consternation of the attendants sometimes causes the best means of relief to be overlooked until the time has passed when any means could have been serviceable; and the striking instance of M. Thénard's prompt and complete recovery may possibly recur to some one of the readers of this paper, at a moment when decisive measures may be rewarded with reflections scarcely less pleasing than those of which M. Orfila must be sensible, when he reflects, that among other benefits which his science has been instrumental in conferring on his fellow-creatures, he has saved so valuable a life as that of M. Thénard.—*Lond. Med. Rep. May*, 1825.

27. *Effect of Vaccination on the General Mortality.*—(*Sciences de l'Institut. Jour. de Chimie Méd. et Rev. Méd.*)—There exists even at the present day sufficient discrepancy of opinion on this subject to make every thing in the shape of respectable evidence valuable. M. Casper's work on the Influence of Vaccination in Prussia proves that not only the mortality among infants, but even the general mortality has been incontestably lessened by it in that kingdom; thus disproving the idea of its causing other maladies to become more fatal to mankind. The following important conclusions are the result of M. Casper's investigations:—

"1. The small-pox formerly carried off from one-twelfth to one tenth of the population.

"2. Of twelve children born at Berlin, one formerly perished of small-pox; at present, not more than one in 116 dies from the same cause.

"3. The diseases of infancy are more common than before the introduction of vaccination, because the number of infants which survive is more considerable than it used to be.

"4. Those diseases formerly destroyed 39 infants in 100; at present only 34 to 100 perish by them: so that before the introduction of vaccination 51 children in 100 died, whilst at present only 43 die out of the same number. There is therefore a sensible diminution in the mortality among infants of a tender age.

"5. Formerly, the general calculation was of one death in every 28 inhabitants; it is at present not more than one in 34. There is therefore a sensible diminution in the general mortality."—*Journ. Compl., Sept.* 1824.

The French Academy have, we believe, appointed M. de Chateauneuf to collect information on this very important subject in France.—*Lon. Med. Rep.* March, 1825.

28. *Peculiar Spasms in Children.*—The disease to which Mr. North's attention has been drawn, nearly resembles that described by the late Dr: John Clarke, in the fourth chapter of his Commentaries. But it was long ago alluded to by Underwood, and, ten years ago, minutely described by Dr. Kellie, in the 12th volume of the Ed. Med. Journal. In the year 1817, Dr. Johnson published a short paper on the disease (which he denominated "carpopedal spasm") in the 3d volume of the monthly Med. Chir. Journal. Some of these sources of information Mr. North has overlooked. The affection is thus described by the acute observer last mentioned.

"The premonitory symptoms occur at an uncertain age—generally, I believe, between the third and seventh month. At first, they may not be sufficiently striking to attract the particular attention of the friends, although the practitioner, who has had the opportunities of watching the progress of similar cases, might, with much confidence, predict the series of symptoms which is yet to be developed. Each time the child wakes from its sleep, the breathing is for some moments unusually accelerated, and is accompanied by such a kind of noise as would be caused by an increased secretion of the mucus of the aerial passages. If the little patient has previously enjoyed a good state of health, the characteristic rotundity of features observable in the infantile state, will quickly undergo a remarkable change. The countenance soon becomes anxious; the sides of the nose are drawn in; the face is pallid and emaciated. When put to the breast, the child sucks greedily for a moment, but suddenly ceases to do so, and frequently throws back the head, which remains rigidly extended for some time. Whatever may have been the previous condition of the bowels, they now become constipated.

"This state may continue for a very uncertain time, without any remarkable alteration: the following symptoms, however, are gradually added to those above enumerated; they occur irregularly. A convulsive affection of the hand is usually the next morbid sign which excites attention. The child's thumb will be found constantly and firmly pressed upon the palm of the hand. The wrist and ancle joints are bent rigidly inwards.

The head is now almost constantly thrown backwards, keeping the anterior muscles of the neck upon the stretch. The inconvenience the child suffers when he wakes, is no longer confined to a mere acceleration of the breathing. This symptom still continues in an aggravated degree, but the noise accompanying the respiration has gradually assumed a very different character from that which marked it at first: each respiration is now attended by a loud crouping noise, which might be heard in an adjoining apartment. The child has frequent attacks of convulsions, during which the features are much distorted. These convulsive paroxysms vary in violence and in duration in different cases; sometimes the whole body is affected. In the child of a Mons. Lambert, in whom the convulsions were frequent and severe, the state of opisthotonos was so complete, that for many days the head and heels were the only parts which touched the bed: if, with difficulty, this apparently painful position was altered by the mother, it was quickly resumed. The brow of the child is generally knit. The anxiety of the countenance is extreme. There is no febrile action in the system to be detected. No determination of blood to the head is manifested, either by an increase of heat or a flushed countenance.

"I have known the firm contraction of the thumb, the rigidly bent position of the hand and foot, and the crouping noise in respiration, continue for many weeks without intermission. The child sometimes appears lively: its countenance will be animated by a momentary cheerfulness; but it almost invariably awakens from its slumbers, however tranquil they may be apparently, with a convulsive paroxysm, similar to that which I have described. The paroxysm having terminated, the child appears much exhausted, and almost motionless for some time. Dr. Clarke observes, that the term of chronic croup has been sometimes applied to this affection; 'but it is very different from croup, and is altogether of a convulsive character.'"

Dr. Kellie's description of this curious disease is worth stating in this place, because the pathology of the complaint has given rise to considerable discrepancy of opinion, and the disease itself does not appear to be known to the generality of practitioners.

"But in many cases this remarkable tumour of the hands and feet has appeared to me to constitute but a part of a disease, of a somewhat more serious and striking nature. Even the swelling itself deserves a more particular description than has been bestowed upon it by Dr. Underwood.

"It has a considerable degree of roundness and elevation, and looks like that sort of tumour which might arise on the same parts from a blow or contusion. It seems to arise suddenly, as it has generally this roundness and elevation from the time of its first attracting observation. When first observed, it has somewhat of a mottled, livid, and purplish colour; I would say it looks cold like, or that it resembles the chilled hand of a full and healthy child after exposure to a cold and frosty atmosphere. It feels cold also, at least it has no inflammatory heat, and does not appear to be morbidly sensible, or to give any pain to the child when handled. It does not pit on pressure, but rather gives the sensation of firmness and resistance; and when pinched, and attempted to be moved sideways, it has always conveyed to me the notion of a disease of infants, which is known by the name of Skin-bound.

"This swelling, which is confined to the anconal aspect of the metacarpus of the hand, and to the rotular aspect of the metatarsus of the foot, terminates abruptly at the carpus and tarsus, insomuch, indeed, that, in lusty children, it seems in these places as if confined by a cord or bandage. I have known this tumour to continue for weeks together. Sometimes it disappears in a few days, not again to return. In other instances, it has from time to time disappeared, and reappeared at short intervals. When

it continues without abatement for any length of time, for a week or two, it sometimes softens, becomes looser and more compressible; its colour changes to paler, and acquires more of a leucophlegmatic hue; in a few cases it has become truly leucophlegmatic, and the œdema has spread upwards on the legs and thighs. But this is a very rare occurrence, of which I have seen but one or two examples. Its more sudden disappearance, without undergoing these changes, or without passing to the state of leucophlegmasia, is by far more common. But this swelling of the tops of the hands and the feet is, according to my observation, connected, in a great proportion of cases, with another appearance of a more formidable nature, a spastic contraction of the flexor muscles of the thumbs in the upper, and of the toes in the lower extremities. The thumb is rigidly contracted, and permanently bent downwards, and laid flat upon the palm of the hand; and, in like manner, the toes are bent down to the plantar aspect of the foot. Along with the thumb, the carpus also is, in some cases, drawn thenard by a spastic contraction of its flexors, which much increases in appearance the prominence and sphericity of the metacarpal tumour. The child labouring under this state of disease is unhappy and restless, but does not appear to suffer much, if any, pain, in the parts affected, unless an attempt be made to force them from their situation; and even this forcing of the thumb or toes from their unnatural position, does not always make the child cry. Though peevish, fretful, and evidently suffering from irritation, he cannot be said to labour under pyrexia at all times. In some cases, indeed, the pulse is more frequent than in health, and towards evening there is an increase of heat, and perhaps flushing of one or both cheeks, with coldness of the feet. The bowels are commonly torpid, and the stools obtained by laxatives are, as Dr. Underwood has described them, fetid and clayey, or green, sour, and slimy. This spasmodic affection, though on some days it may appear more relaxed than on others, is, upon the whole, wonderfully persistent. I have known it continue, with little abatement, for many weeks. In others, it has yielded within a shorter period, in a few days, in a week or fortnight. In one child, who at length died of supervening marasmus, the contracted state of the thumbs continued, with little occasional relaxations, for three months. The greater number of cases which I have seen have terminated favourably. I have sometimes known eclampsia to supervene to this tonic spasm of the thumbs and toes. One child had repeated fits of convulsion, on three successive days, and eventually recovered. Two others have died after supervening eclampsia. In another case of this disease, in which the thumbs and toes had been contracted for three or four weeks, fever supervened, and the child died after passing through all the symptoms of hydrencephalus acutus. Two other children, affected with the disease in question, have tardily sunk under that train of symptoms which Dr. Armstrong distinguished as the hectic of teething. These are the only instances I have met with, in which this disease has had a fatal termination; and that termination, it may be observed, has been by a sort of conversion, or gradation, by the supervention of eclampsia, hydrencephalus, or abdominal fever."

In all the cases, the age was between six months and two years—consequently within the period of dentition. Dr. K. therefore looks upon dentition as the chief, though probably not the only cause of the disease in question.

Dr. Johnson, in the volume before cited, has related a case, which appears to have been an exquisitely marked one of this peculiar affection—and, as it is short, we shall cite it.

"The patient was a delicate female child, nineteen months old, and cutting three or four teeth at the time. She had been ill eight days before the Reporter saw her; but according to the mother's account, there was little or no variation in the symptoms all the time. When first seen, the

child three or four times in the hour was seized with spasmodic affections of the respiratory muscles, consisting of repeated attempts to fill the chest, during which she threw herself back, as in opisthotonos, and appeared as though she would be suffocated. These fits would last ten or twelve minutes, after which the child was somewhat easier, but always fretful and peevish. The backs of the hands and insteps were swoln and hard. The thumbs were rigidly contracted, and locked across the palms of the hands. The toes were bent down towards the soles of the feet, and both wrists and ankles were rigidly bent by the flexor muscles, and kept permanently so. The little patient could take no food: she was slightly feverish; the bowels torpid; and the stools clayey, slimy, and offensive. The eyes looked very heavy and inanimate. The child extremely irritable and restless both by day and by night.

"For reasons unnecessary to mention, no very active means were employed for some days, during which the child got worse, and was evidently declining fast. Hydrencephalus or eclampsia being now dreaded, leeches were applied to the temples; calomel and antimonial powder were exhibited thrice a day, and the warm bath was employed in the evening. After the bath and bleeding, the spasms went off for twelve hours entirely, and the child took some food. They returned, however, but not so violently as before, and the convulsive respiration was much relieved. The calomel and antimony were continued, as was the warm bath; and the gums were deeeply scarified wherever a tooth appeared to be coming. From this time the child gradually recovered, and on the 18th day the spasms had entirely disappeared."

In no instance has Mr. North seen this disease fatal—and we can say the same in our own practice. It is well known, however, that the late Dr. Clarke, and the present most able practitioner, his brother, together with their elèves, looked, and still look upon this disease, or this train of symptoms, as indicative of hydrocephalus, or rather of that state of brain which leads to hydrocephalic effusion. This treatment is consequently the same as in the last-mentioned disease. While we do not coincide with this school in viewing the disease in so grave a light, we think it prudent, in all these cases, to guard the head, while we freely lance the gums, and act upon the bowels. It must be evident that the spasms above described can only be produced through the instrumentality of the brain and nervous system, by which all power is supplied to the muscles, whether within or without the salutary boundary. But a sympathetic affection of the brain and nervous system, as from dentition, bad secretions in the bowels, &c. is a very different thing from an idiopathic affection of the same organ, constituting an inflammation. The *latter* is dangerous, and cannot continue long without fatal consequences—the former (in which we include the subject of this article) is far less dangerous, and may go on, as the cases prove, for some weeks, or even months, and terminate favourably, without any very active measures. Still we would not advise that it should be treated too slightly, but always with the danger of cerebral inflammation or effusion in our mind—not in the active manner of acute hydrocephalus, but as a preventive of any such supervention. This appears to be the sentiment of Mr. North and Dr. Kellie.

"The treatment (says Mr. N.) demanded in the above state, may be very briefly laid down. The gums should be freely lanced, if they appear swollen or inflamed. To keep the bowels open, purgatives must be freely given: calomel, in combination with powder of jalap, is perhaps the best remedy. During the convulsive paroxysm, the child should be put into a warm bath. The diet, if the child unfortunately is deprived of its mother's breast, should be very strictly attended to. The digestive powers are evidently weakened, and it is destructive to impose upon the stomach a task which it is not capable of performing, by giving solid food in any form." —*Johnson, April*, 1825.

MEDICAL INTELLIGENCE.

UNIVERSITY OF PENNSYLVANIA.

PROFESSORS.

In the Arts.

Frederick Beasley, D. D. Professor of Moral Philosophy, Provost of the University.
Robert M. Patterson, M. D. Professor of Natural Philosophy and Mathematics, Vice Provost.
James G. Thomson, A. M. Professor of Languages.
Rob. M. Patterson, Secretary.

Medicine.

Philip Syng Physick, M. D. Professor of Anatomy.
Nathaniel Chapman, M. D. Professor of the Institutes and Practice of Physic, and of Clinical Medicine.
William Gibson, M. D. Professor of Surgery.
John Redman Coxe, M. D. Professor of Materia Medica and Pharmacy.
Robert Hare, M. D. Professor of Chemistry.
Thomas C. James, M. D. Professor of Midwifery.
William E. Horner, M. D. Adjunct Professor of Anatomy.
William E. Horner, Dean.

Natural Sciences.

William P. C. Barton, M. D. Professor of Botany.
Thomas Say, A. M. Professor of Natural History, including Geology.
Robert M. Patterson, M. D. Professor of Natural Philosophy.
William H. Keating, A. M. Professor of Mineralogy and Chemistry as applied to Agriculture and the Arts.
Thomas T. Hewson, M. D. Professor of Comparative Anatomy.

Law.

Charles W. Hare, A. M. Professor.

General Literature.

Robert Walsh, jr. LL. D. Professor.

Teachers of Modern Languages.

——— Grillet, teacher of the French. Francis Varin, teacher of the German. Felix Merino, teacher of the Spanish.
William Dick, Janitor.

The Anatomical Museum contains upwards of 800 specimens, illustrative of subjects connected with Anatomy, both human and comparative.

The following statement from H. Dearborn, general in the United States army, will, we hope, place the apparatus of Mr. Amesbury, for the treatment of fractures of the lower limbs, on the same distinguished footing in America, which its simplicity, and the opinion of Astley Cooper and others of the most eminent surgeons, have done in England. Its merits are necessary only to be known, to be universally acknowledged.

Boston, June 15, 1825.

Before I received Amesbury's apparatus, I had been confined to my bed, between three and four weeks, and had not been able to be removed, or set up, but with great care and difficulty, and then but seldom. I was fortunate in finding an excellent surgeon in Hartford, Doctor Morgan, whose great experience, skill, and success, has justly rendered him celebrated, and my recovery was rapid under his care, beyond my expectations; still, from being large and heavy, it was fatigueing and dangerous to move on, or from my bed, until the new splints were applied, when I was taken from it with facility, without the risk of injury, and without fatigue or pain; and by the aid of crutches, the *second day* I walked about my chamber, and into the dining room: on the third day and after, I could get out of, and into bed, without assistance, and ride in a carriage, set up all the day and evening, with the exception of a short nap after dinner: and on the eighth day, I set out on my journey home. I rode with perfect ease, the whole distance of one hundred and twenty miles, in three days and a half.

I consider Mr. Amesbury's apparatus an invaluable invention, and that in all fractures of the lower limbs, I am confident surgeons and patients will find it, on trial, so *beneficial* and *comfortable*, that there can be but one opinion in relation to its utility.

I am satisfied it has facilitated my recovery, and enabled me to walk and ride four or five weeks sooner than I otherwise could have done, with safety and ease.

I can perceive no difficulty in a patient's walking and riding, as soon as the swelling and fever have abated. No surgeon should be without it, and those who are so unfortunate as to fracture a limb, will be astonished at the aid which will be derived from its application.

I deem myself most fortunate, in being able to obtain the splints.

HENRY DEARBORN.

At a meeting of the class of Dr. William P. C. Barton, Professor of Botany in the University of Pennsylvania, held on the 27th instant,

Thomas P. Watkins, M. D. was called to the chair, and

James B. Slade, chosen Secretary, when it was

Resolved, that in consideration of Dr. Barton's highly valuable course of lectures on Botany, and of the great respect entertained for his known character and talents, a committee of five, namely, Messrs. Robert W. Haxall, H. M. Hubbard, Henry C. Pratt, James B. Slade, and George A Sykes, be appointed to communicate to him the unqualified thanks of this meeting.

Resolved, that these proceedings, with the address and reply, be published.

T. P. WATKINS, Chairman.

J. B. SLADE, Secretary.

Philadelphia, June 29th, 1825.

To William P. C. Barton, M. D. Prof. Botany, &c. &c.

Dear Sir,—In accordance with a wish unanimously expressed by the members of your Class, we, with feelings of peculiar pleasure, make, through the medium of this communication, a tributary offering of our gratitude, and heart-felt acknowledgements, for your assiduous and devoted attention to us, during the whole period of your excellent course of instruction, that has just been terminated, on that Science, in which you rank so proudly conspicuous. Hereafter, when leisure shall permit us to reap the fruits of the Elementary Principles, which have been so ably inculcated, we shall frequently revert with fond pleasure and a renewed sense of obligation to our kind preceptor. While rendering a testimony of regard for unlocking our minds to the vast and inestimable treasures of the Vegetable World, permit us to hail as a joyous omen, the increase in number of your pupils; who now being made sensible of the great importance of this branch of Natural History, will cheerfully unite their zeal and feeble support in the promotion of its honourable advancement.

With sentiments of the highest esteem and respect, we remain yours, &c.

R. W. HAXALL,
H. M. HUBBARD,
H. C. PRATT,
J. B. SLADE,
G. A. SYKES,
Committee.

Philadelphia, June 29th, 1825.

Gentlemen,—I have the pleasure to acknowledge the receipt of your letter, of this day, in behalf of the Class which attended my lectures on Botany.

As there can be nothing more gratifying to a teacher, than an attestation by his pupils, of the usefulness of his instruction, I should dissemble did I not say, I feel this gratification. Though I have always received the most flattering attention to my subject, from the small classes I have heretofore had in attendance on my lectures, I cannot withhold from the class of which you are the representatives, my unfeigned thanks, for their assiduous and constant attendance; and the deep, and to me gratifying interest, its members unanimously manifested in the subjects of the course.

While you have, to the credit of your industry, availed yourselves, by a voluntary attendance on my lectures, of an opportunity of obtaining instruction in the principles and objects of a Science, intimately connected with your professional interests; you have the satisfaction of knowing that it is rising rapidly into that importance in the medical colleges of this country, which it has always maintained in those of Europe. This satisfaction must be enhanced by an assurance which you will be justified in feeling, that you will have contributed, by your support, to that desirable advancement of the interests of Botany, which must follow, sooner or later, the perception of its importance in an elementary medical education, by students of medicine.

This importance is now generally admitted; as an evidence of it, I may state, that the present Secretary of the Navy, whose exertions and energetic measures for the good of the naval service are manifest and acknowledged, and have, by being extended to the medical department, greatly elevated its respectability, issued an official recommendation to the medical officers of the service, who resorted to this city by his orders, for instruction preparatory to promotion, to attend lectures on Botany.

I have determined, henceforth, to afford the medical students of this city, every opportunity of instruction. This I shall do by delivering, annually, an autumn, and a winter course of Botany, in addition to that of the spring. By the commencement of the autumn course, in September next, the cabinet I have established in the University, of descriptive and demonstrative

Botany, will have been completed, and the room furnished with a set of the necessary text books for the class then attending. Be kind enough to convey to the late class, my invitation to the use of this cabinet, during the autumn course; and state that it will afford me pleasure, if they will avail themselves of it.

Receive, gentlemen, for the whole class, my earnest wishes for your future prosperity, and professional eminence; and be assured, I shall always retain a warm recollection of your kindness and attention.

WILLIAM P. C. BARTON.

To the Members of the Committee.

The editor of this Journal has attended the lectures of Dr. Barton, and can state, that he has never heard, on this subject, a more instructive course, or one more useful to the student of medicine. It is now under consideration, by the Trustees, whether it will be made necessary for a degree, in the University of Pennsylvania. The only apparent objection of any weight, which has occurred, is, that it would lessen the number of students. The perfection of a course of instruction depends upon the subdivision of its branches, and the appointment of able men to teach them. Other colleges in this country, and all of note in Europe, have rendered Botany necessary, in order to strengthen their claims to public patronage. As it opens to medical discovery the whole vegetable world—a vast mine, peculiarly rich, and almost entirely unexplored in this country, its value to any school, and to humanity, will be appreciated. Princeton College, in this country, is dwindling, from the small number of the professors, whilst that of Yale, which has a great many, flourishes to an unexampled degree. In Edinburgh, they render it necessary to attend courses on nine different subjects, of which Botany is one, and their school has increased, in four years, 150 students.

* See Edinburgh Medical and Surgical Journal, April, 1825.

Medical School of Maine.—The medical lectures at the Medical School of Maine have recently closed. The following young gentlemen were deemed worthy to be recommended to the boards of Trustees and Overseers of Bowdoin College, for the degree of Doctor in Medicine: Horace Bacon, *of Scarborough*, on Cynanche Maligna. David Folsom, *Vassalborough*, Dyspepsia. Samuel Ford, *Gray*, Dysentery. Dr. Alva Godding, *Burke, Vt.* Fever. Wm. B. Gooch, *North Yarmouth*, Delirium Tremens. Samuel Greely, *Mount Vernon*, The Structure and functions of the Skin. Ebenezer P. Hills, *Fitchburg, Mass.* Enteritis. Dr. Gad Hitchcock, *North Yarmouth*, Typhus Mitior. Cyrus Knapp, *Leeds*, Influence of the Mind on the Functions of the Body. Richmond Loring, *North Yarmouth*, Cholera Infantum. Wm. Ludwig, *Waldoborough*, Fœtal Circulation. Martin M. H. Markoe, *St. Croix, W. I.* Inflammation. Charles H. P. McLellan, *Portland*, Tic Douloureux. Geo. Packard, *Wiscasset*, Puerperal Fever, Eben. Parsons, *New Gloucester*, Dyspepsia. Augustus Pierce, *Boston, Mass.* Hydrocephalus. James H. Pierce, *Watersborough*, Dyspepsia. Jere. S. Putnam, *York*, Croup. Increase S. Sanger, *Bloomfield*, Inflammation. John Stevens, *Paris*, Dysentery. Cephas Whitney, *Gray*, Pneumonia. Levi Willis, *Paris*, Effects on Disease, of Change of Climate.

Medical Institution of Yale College. March 1st. 1825.

The following young gentlemen, having been duly examined and found properly qualified, were recommended to the President and Fellows of this College as worthy the degree of Doctor of Medicine, viz.

From Connecticut.—Charles Baldwin, *Emetics*—James Baldwin, *Circulation of the Blood*—D. H. Boardman, *the Secretions as sources of pleasurable sensations*—Joel G. Candee, *Digestion*—Andrew Castle, *Typhous Fever*—Hosea Edwards, *Natural means of stopping Hemorrhage from divided Arteries*—Theodore Gilbert, *Cholera Infantum*—David Harrison, *Dyspepsia*—Henry Holmes, *Vis Medicatrix Naturæ*—Thomas G. Hubbard, *Abscess, Ulcer, and Mortification*—Ira Hutchinson, *Consumption*—Hiram Moses, *Apoplexy*—Samuel C. Noyes, *Cathartics*—Daniel W. Northrop, *Varioloid*—Guy R. Phelps, *Influence of the Passions on Diseases*—John G. Pierce, *Scalds and Burns*—Wolcott Richards, *Fistula Lacrymalis.*—Charles Smith, *Dropsy*—William Wheeler, *Necroses.*

From Massachusetts.—B. C. Allen, *Cold Water in the cure of diseases*—David Davis, *Dyspepsia*—Charles M. Fay, *Small Pox*—John D. Russ, *Cold.*

From New York.—Frances Myers, *the Medical use of Gold.*

From Vermont.—Edward E. Phelps, *Nervous Influence.*

The following courses of Lectures are given in the Medical Institution of Yale College, viz.

Theory and Practice of Physic and Surgery,	by	Nathan Smith, M. D.
Chemistry and Pharmacy,	"	Benjn. Silliman, M. D.
Materia Medica and Botany,	"	Eli Ives, M. D.
Anatomy and Physiology,	"	Jonathan Knight, M. D.

A course on the Diseases of Women and Children is given by the Professor of Materia Medica, and one on the practical parts of Midwifery by the Professor of Anatomy. The lectures begin on the last Monday of October and continue till the first of March. The price of the tickets for all of the above courses of lectures is fifty dollars. There is also a matriculation fee of five dollars, and a bill for contingent expences of two dollars and fifty cents. The Anatomical rooms, and the Academical and Medical Libraries are free to all who attend the lectures. The price of Board is from one dollar seventy-five to two dollars and fifty cents a week. The whole necessary expence of a student during the course, including the tickets, will be from $120 to $150. The expence of a Degree of Doctor of Medicine is twenty dollars. Those who are examined for a degree must be twenty one years of age; have been engaged in the study of medicine three years, and have attended two full courses of medical lectures in this or some similar public Medical Institution.

At the Annual Commencement of the Berkshire Medical Institution, Williams College, (Mass.) December 25, 1824, the following gentlemen were admitted to the Degree of Doctor of Medicine:

Daniel M. Angell, Sheffield, Mass. on Sympathy—Joseph Ballard, Homer, New York, on Opium—John J. Bassett, Greenbush, New York, on Mania—Thomas A. Brayton, Adams, Mass. on Union by the First Intention; Nelson Brown, Pittsfield, Mass. on Goodyeræ Pubescens—Samuel R. Childs, New Marlboro, Mass. on Hypochondriasis—Benjamin F. Cleveland, Madison, New York, on Hydrocele—Harris Cowdry, Boston, Mass. on Fever—Alvan Wheeler, New Marlboro, Mass. on the Dignity of Medical Pursuits—Erastus Cushing, Lanesborough, Mass. on Conium Maculatum—Mason C. Darling, Prescott, Mass. on Scrofula—Morris Dwight, Williamsburgh, Mass. on the Medical advantages of the study of Natural History—Silas R. Kellogg, Sheffield, Mass. on the Reciprocal Influence of the body on the mind, and the mind on the body—Horatio N. Flint, Putney, Vermont, on Chlorosis—Benjamin F. Kittredge, Kinsdale, Mass. on the Gout—William F. Kittredge, Pittsfield, Mass. on Cynanche Trachealis—Oliver S. Root, Pittsfield, Mass. on Bichat's Theory of the Passions.

Medical Commencement in the University of New York.

At the annual commencement of the College of Physicians and Surgeons in the city of New York, held on Tuesday the 12th instant, the degree of Doctor of Medicine was conferred on the following (fifty) Gentlemen.

Maine.—Benaiah Hauson, on Health.

Vermont.—William C. Hickock, on Hydrocephalus.

Connecticut.—Theodore L. Mason, on the Infantile Remittent Fever.

New York.—Luke Barker, on the Prolapsus Uteri—Oliver Bronson, A. B. on the Influence of Man's Physical Structure on his character as an Intellectual Being and Moral Agent—James T. Cromwell, on the Absorption of Foreign Substances into the Blood-vessels—Joseph W. Duval, A. B. on Rheumatism—Edwin Dey, on Indigestion—Edwin A. Ely, on Animal Heat—John C. Fanning, on Dysentery—John I. Graves, on the Liver—Warmoldus S. Kuypers, on Dysentery—James Macdonald, on Phrenitis—Peter Parks, on Cynanche Trachealis—James H. Rogers, on Enteritis—Henry Rose, A. B. on the Effects of Ardent Spirits—John I. Ruton, on Inflammation—Marcus Sears, on the Liver—James O. Smith, on Hydrothorax—Ebenezer Storer, on Aneurism—Junius Thompson, A. B. on Hydrocephalus—Van Rensselaer Ten Broeck, A. B. on Pthisis Pulmonalis—Philip Ten Eyck, on Scrophula—John Tiebout, jun. A. M. on Phlegmasia Dolens—Philip Van Arsdale, on Opium—Alexander F. Vaché, on the Surgical Anatomy of the Groin—Field Ver Meule, on Fever—Edwin Webb, on Retention of Urine.

New Jersey.—John M. Cornelison, A. B. on Hooping Cough—Cicero Hunt, on the Uterus—John R. Hunt, on Fever—Isaac James, on Capsicum—Amos S. Miller, on Arthritis.

Pennsylvania.—Bernard M'Neil, on Leucorrhœa—Archibald B. Simpson, on the Temperaments.

Virginia.—William H. Glascock, on Inflammation.

North Carolina.—Frederick J. Cutler, A. B. on Mania—James B. Yellowley, on Menstruation.

South Carolina.—Trezevant de Graffenried, on Inflammation of the Liver—Edmund J. Felder, A. B. on Dropsy—Thomas W. Hutson, A. B. on Tetanus—John S. Palmer, A. B. on Phrenitis—Alexander Williams, A. B. on Dysentery.

Georgia.—Thomas B. Turner, on Hydrocephalus—James M. Williams, on Laryngitis.

Alabama.—Stith F. Jones, on Phrenitis—John A. Whetstone, on Trachitis.

Louisiana.—Jacobus Moranus, de Peste Tropica.

West Indies.—George W. Codwise, A. B. on the Absorbents.

Ireland.—Richard Charles, on Rheumatism.

UNIVERSITY OF PENNSYLVANIA.

At a public commencement held April 5th, 1825, the degree of Doctor of Medicine was conferred upon the following gentlemen:

New York.

Andrew Comstock, on Dyspepsia—James P. Boyd, on the Effects of Cold—John Brinckerhoff, jr. on Hæmoptysis—Ten Eyck Gansevoort, on Oleum Terebinthinæ—Isaac N. Marselis, on Remittent Fever of Philadelphia county—Isaac Brinckerhoff, on the Absorbent System.

New Jersey.

John H. Burr, on Fistula in Ano—Jacob T. Sharp, on Morbus Coxarius.

Pennsylvania.

A. Carpenter Frazer, Epidemic of Lancaster—Lothus Benson, on Scorbutus—Andrew Wills, on Gonorrhæa—Othneil H. Taylor, on Gastritis—James A. Hahn, on Cuticular Absorption—John Wiltbank, on Action of the Heart—William B. Fahnestock, on Circumscribed Aneurism—William D. Gallaher, on Diseases of the Bones—Henry A. Riley, on Modus Operandi of External Irritants—Thomas H. Yardley, on Medicina Mentis—Wilmer Worthington, on Intermittent Fevers—William Plumstead, on Sequelæ of Intermittent of Chester County—Thomas Tracey Smith, on Typhoid Fever of Almshouse—William Wetherill, on Lead and its preparations—Isaac W. Hughes, on Gonorrhœa—Geo. A. Hetich, on Epidemic of Chambersburg—Charles C. Harding, on Fevers—Robert M. Huston, on Hæmorrhoids—William H. Harrington, on Pulvis Doveri—Samuel M. Thomas, on Dysentery—James Rankin, on Dysentery—Henry Lorain, on Dysentery—John Roming, on Diaphoretics—Gilbert Heston, on Tetanus—Jeremiah Kern, on Hydrothorax—James Cox, on Ascites—Philip M. Price, on Fasciæ of the Human Body—Smith M. Price, on Bilious Colic—Thomas W. Miner, on Ingesta—Silas H. Beans, on Intermittent Fever—Henry Abbett, jr. on Injuries of the Head—Robert P. Simmons, on Injuries of the Head—William H. Denny, on Bronchocele—Charles Innes, on Sanguinaria Canadensis.

Delaware.

Andrews Murphey, on Puerperal Convulsions—Justus Dunott, on Aneurism.

Maryland.

Robert C. J. Cary, on Nitro-Muriatic Acid—John Sappington, on Hepatitis—James P. Dickinson, on Hydrocepalus Acutus.

District of Columbia.

Robert Ewing Kerr, on Mania a Potu.

Virginia.

Alfred Leyburn, on Puerperal Convulsions—Nicholas Marmion, on Fever—Robert H. Mason, on Phlegmasia Dolens—James W. Thompson, on Medical Topography—Richard M. Hill, on Amenorrhœa—William W. Wilkins, on Amenorrhœa—James B. Claiborne, on Cholera Infantum—William L. Wight, on Aneurism of the Heart—Llewellyn Powell, on Ascites—William C. Warren, on Dysmenorrhœa—Thomas Dillard, on Erysipelas—John A. Turner, on Pneumonia Vera—John G. Parham, on Autumnal Fever of Greensville—Alexander Bryant, on Hydrocephalus Acutus—Thomas H. Clagett, on Effects of Mercury—Benjamin F. Doswell, on Improvements in Surgery in the United States—Richard Hill, on Hæmoptysis—William W. Oliver, on Leucorrhœa—Randolph S. Stubbs, on Tetanus—Alfred Friend, Gastritis—Thomas H. Watkins, on Bilious Remittent Fever—Francis D. Jones, on Puerperal Fever—John L. Cobbs, on Sympathy of the Brain and Stomach—George Fleming, jr. Tetanus—John E. Dennis, on Gillenia Trifoliata—Charles Speece, on Gastro-cutaneous Sympathy—William J. Ponsonby, Cynanche Trachealis—Richard W. Fox, on Dysentery—Robert Redd, on Arsenious Acid—Dabney P. Philips, on Oleum Terebinthinæ—David O. Jones, on Hepatitis—Orris A. Brown, on Rubeola—Lawrence A. W. Roane, on Acute Hepatitis—Lewis Willis, jr. Cholera Infantum—Thomas T. Slaughter, on Cynanche Trachealis—John R. Wise, Rheumatismus Acutus—Gustavus B. Campbell, on Acute Peritonitis—William I. Scott, on Hæmoptysis—James Hay, on Bilious Fever—William T. Willis, on Hæmoptysis.

North Carolina.

Rufus Haywood, on Cynanche Trachealis—Samuel Kerr, on Urine in Disease—William A. Shaw, on Modus Operandi of Medicines—Silas Webb, on Miliary Fever—John R. Hicks, on Anasarca—Willie Jones, on Acute Rheumatism—John F. Ward, on Hydrocephalus Acutus—Charles R. Yancey, Pneumonia Typhoidea—Jacob L. Martin, on Local Origin of Fever.

South Carolina.

George Reynolds, on Puerperal Fever—James O. Hagood, Gastritis—Joseph H. Ramsay, on Yellow Fever of Charleston—Francis M. James, on Bilious Remittent Fever—John W. Smith, on Metastasis—William Yates, on Jaundice—Edward W. Hamilton, on Cataract.

Georgia.

James Holmes, on Physiognomy of Disease—Paul H. Wilkins, on Yellow Fever of Savannah—John S. Law, on Pinckneya Rubescens—Claiborne A. Watkins, on Rubeola Vulgaris—Leonidas B. Mercer, on Intermittent Fever—James E. Williamson, on Calomel—Thomas P. G. Stephens, Antim. Tartarizatum.

The Medical Department of the Columbian College in the District of Columbia.

The first course will be commenced on the last Wednesday in March, and continued during three months. The Lectures will be delivered in the Medical Institution, situated in a central part of this city.

The Medical Faculty are:

Thomas Sewall, M. D. Professor of Anatomy and Physiology.

James M. Staughton, M. D. Professor of Surgery.

Thomas Henderson, M. D. Professor of the Theory and Practice of Physic.

Nicholas W. Worthington, M. D. Professor of Materia Medica.

Full courses will also be given on Chemistry and Obstetrics.

An extensive apparatus, recently imported from Europe, will afford the Lecturer on Chemistry ample opportunities for displaying the experimental parts of that science.

Arrangements will be made for exhibiting Clinical Practice and Operative Surgery to the Class.

The following extracts are from the Laws adopted by the Board of Trustees for the government of the Medical Department.

"Each Student shall pay ten dollars to each Professor, making the sum of forty dollars for the present courses.

"All Students who may wish it, shall have the privilege of attending, gratuitously, the Lectures in the Classical Department of the College, on Natural Philosophy, Astronomy, Botany, Natural History, &c. by presenting a recommendation from the Medical Faculty to the President of the College.

"No Student shall be admitted to examination for a Medical degree, till—

"1st. He shall have attended each Professor during two full courses, or one full course in this College and one in some other respectable Medical Institution.

"2d. He shall have studied three years under the direction of some regular Physician.

"3d. He shall have satisfied the Medical Faculty of his classical attainments, if he be not a graduate in the Arts.

"4th. He shall have entered his name with the Dean of the Faculty as a candidate for graduation, and delivered to him an Inaugural Dissertation on some Medical subject, thirty days at least before the close of the course."

Washington City, December, 1824.

At a public commencement held in the Anatomical Hall of the University of Maryland, on Monday the 4th inst. the degree of Doctor of Medicine was conferred on the gentlemen whose names are subjoined, and who wrote dissertations on the subjects annexed to their respective names.

James Chester, of Baltimore, on Contagion of Typhous fever—Charles E. Smith, of Lancaster, Pa. Phthisis Pulmonalis—Abraham M. Hazlehurst, of Philadelphia, Spina Ventosa—Hales E. Walmer, of Baltimore, Pertussis—Michael Pue, do. Ascites—Parkin Hollingsworth, do. Consequences of Hepatic disorders—Edward Y. Goldsborough, Maryland, Febrile origin—Thomas Owings, Baltimore, Gastritis—Robert T. Musgrove, do. De carotides, præcipuè encephali in morbis ligando—John Denny, Maryland, Enteritis—John A. Magruder, do. Gastritis—William B. Magruder, do. Puerperal Fever—Elias Ball, Charleston, S. C. Sense of Hearing—Henry Winthrop, do. Ascites—Elias H. Deas, do. Inflammation—Edward G. Edrington, Virginia, Hydrocephalus Internus—Meredith Helm, Maryland, Agents of Absorption—Thomas A. Roberts, do. Cholera Morbus—Jacob Shower, do. Cynanche Trachealis—Francis Y. Simmons, Charleston, S. C. Cynanche Trachealis—Charles M. Yates, Maryland, Hydrophobia—George W. West, do. Hepatitis—Robert E. Smith, do. Phenomena of Vomiting—Josias A. Beall, do. Cholera Morbus—Robert Neale, do. Cholera Infantum—George W. Warfield, Baltimore, Digestion—George Patterson, Virginia, Stricture of the Rectum—John W. Hammond, Maryland, Modus operandi of Medicine—Washington W. Hitt, Ohio, Cancer—Thomas I. Cowman, Maryland, Intermittent Fever—John C. Howard, do. on the Use of Emetics—Jonathan Manso, Jr. Baltimore, Small Pox—William A. Rainey, do. Circocele—Edward W. Carrere, do. the Pathology of Fistula—Nicholas Terrell, Virginia, Puerperal Fever—John H. Jones, Maryland, History of Medicine—William Edelen, do. Physiology of the Liver—Lewis L. Holliday, Virginia, Inflammation—John S. Burke, Maryland, Cynanche Trachealis—Charles V. Swearingen, do. Rheumatism—Daniel H. Skinner, do. on the Qualifications of a Physician—William R. Dorsey, do. Erysipelas—Jefferson Shields, do. Cholera Infantum—Thomas Pool, do. Vis Medicatrix Naturæ—Joseph Martin, Baltimore, Enteritis—Charles Byrne, Ireland, De Morbis Coxariis—Edward Jenner Smith, Baltimore, Medical Botany—William S. Moore, Ohio, Hepatitis—Charles S. Frailey, Baltimore, Epilepsy—Robert H. Nelson, Virginia, De Rheumatismo—John M. Anderson, do. Asclepias Ireamata—John B. Hawkins, Maryland, Anomalous Bilious fever—Lunsford P. Yandell, Tennessee, Insanity—Hugh Hamilton, Virginia, Pneumonia—Henry W. Snyder, Baltimore, Cynanche Tonsillaris—James W. Parsons, District of Columbia, Phthisis Pulmonalis—Edwin Dorsey, Baltimore, Hydrocephalis Internus—Henry Kuhn, Maryland, Dysentery—Levi C. Cordell, Virginia, De tetano vulneribus oriente—William Addison, Pittsburgh, Pa. Intermittent Fever—Henry W. Fitzhugh, Virginia, Lyssa, or canine madness—Thomas J. Gassaway, Maryland, De Pneumonia*—Henry Alexander, South Carolina, Phrenitis—David Keener, Baltimore, Origin and character of the poisons producing Remittent and Typhus Fevers—John W. Conner, South Carolina, Hepatitis—John Norcom, North Carolina, the Lymphatic Glands—John Pattison, Scotland, Apoplexy—Edward C. Bellamy, North Carolina, Eclampsia—Rezin D. Hewitt, Maryland, Apoplexy—Gideon G. Tongue, Maryland, Yellow Fever—Caleb B. Greenwood, Georgia, Digitalis Purpurea—John J. Drusy, Maryland, Apoplexy—Henry D. Sellers, do. Intermittent Fever—Robert W. Young, Virginia, Physiology of Bone—William W. Morgan, do. Hepatitis—Francis McCoy, Maryland, Anthorax.

At the same time, the *honorary* degree of M. D. was conferred on Dr. Charles Atkins, of South Carolina, on Dr. Peter Mowry, of Pittsburgh, Pa. and on Dr. Ephraim McDowell, of Danville, Kentucky.

* This gentleman is entitled to the medal, for having produced the best Latin Thesis.

Medical Commencement of Transylvania University.

The public commencement of Transylvania University, was held on Monday, the 14th instant, when the degree of *Doctor of Medicine*, was conferred on

James Harris Bennett, Missouri, essay on Fever—Eli Bannister, Mississippi, on Yellow Fever—Hugh Bonner, Ireland, on the Nervous system—Havilah Beardsley, Ohio, the Epidemic Fever of 1823—Henry Eustis Curtis, Alabama, Gastric Fever—Livingston Guthrie Criddle, Tennessee, Dysentery—Andrew Barry Crook, S. Carolina, on Inflammation—John Sayers Crockett, Tennessee, on Typhus Fever—William Patterson Chester, Tennessee, on Congestion—Elijah Coons, Kentucky, on the use of the bandage—Samuel Tribble Crews, Kentucky, Epidemic Fever of Wayne county, Indiana, for 1823—Samuel Williams Coombs, Kentucky, on the power of the passions in the prevention, production, and cure of diseases—George Washington Campbell, Tennessee, on the vitality of matter—Israel Thompson Canby, Indiana, on Cholera Infantum—John Adams Caldwell, Kentucky, on Remittent Fever—Samuel W. Dalton, do. modern Surgery—James Foster, Virginia, on Dysentery—William Fullerton, Kentucky, on Emetics—Charles Glover Fisher, Tennessee, Effects of Venesection—Nelson Kelsoe Foster, Virginia, on Bilious Inflammatory Fever—Uriah Grigsby, Alabama, Bilious Remittent Fever—Christopher Graham, Kentucky, Morbid sympathy and excitement—Benjamin H. Hawkins, Tennessee, Vis Medicatrix naturæ—Benjamin Marion Howorth, N. Carolina, on Infanticide—Jehu John, Ohio, water of different temperatures as auxiliary in the cure of fevers—Davis Caldwell Knox, Kentucky, on Typhous Fever—John Kennedy, S. Carolina, Medical influence of love—Carter Lee, S. Carolina, on Male sterility—Thomas Lyne, Tennessee, on Dyspepsia—Seaborn Jones Noble, Georgia, Influence of the Lachrymal gland on the brain and passions, and upon the eye in disease—Thomas Norvell, Tennessee, Cholera Morbus—Campbell Maddin, Ireland, on the preservative and curative powers of nature—John Wesley Monett, Mississippi, on Bilious Fever—John W. P. M'Gimsey, Tennessee, Pneumonia Typhoides—Samuel T. M'Adow, Kentucky, Epidemic Fever of Mason county in 1824—Samuel Dickinson M'Cray, Mississippi, Influence of unwholesome fashions—Samuel Shaw Porter, S. Carolina, on cold, tepid, and warm bathing—James Perkins, Mississippi, on Congestive Fever—John Breckenridge Payne, Kentucky, on Vermes—William Wilson Roman, Kentucky, on Chlorosis—Thomas Rivers, Tennessee, on Female Hygeia—William Short Ridgely, Kentucky, influence of the imagination on the system—John K. Ransone, Virginia, on convalescence—William Martin Shreve, Kentucky, on Mania a Termulentia—Bennet Pemberton Sanders, Kentucky, on Medical combinations—Levi Todd, Alabama, on Dysentery—James Taggart, Ireland, on Dysentery—Ambrose William Wake, Kentucky, on Carditis—James Edmund Wyche, Alabama, on Dyspepsia—George Richard Wharton, Alabama, on Syphilis—William Wayland, Ohio, use of the bandage—Augustine Burkett Washington, Alabama, on Intermittent and Remittent Fever—William Washington Whitney, Kentucky, on signs that distinguish real and apparent death—John Roretson Wilson, Tennessee, on Phytolacca decandria—Noah S. Webb, Kentucky, on Puerperal Fever—Greed Taylor Woodson, Virginia, Bilious Inflammation Fever.

Five candidates were rejected, and three declined an examination.

Medical College of South Carolina.

This Institution closed its session on the first Monday of April, when Medical Degrees were conferred on the following Gentlemen:

Eli Geddings, Abbeville, South-Carolina, on the Circulation of the Blood—J. P. Gavin, Georgia, Cholera Infantum—W. C. Webb, Charleston,

S. C. Febris Remittens—Charles W. Grayson, Beaufort, S. C. on the Bilious Remittent as it appeared in the town and vicinity of Beaufort—J. L. Felder, Sumpter District, S. C. Gun-Shot Wounds.

And Honorary Diplomas on the folloming Gentlemen:

Dr. Mathew Irvine, Charleston, S. C.—Dr. James Davis, Columbia, S. C.—Dr. Milton Anthony, Augusta, Georgia—Stephen Elliott, LL. D. Professor of Botany and Natural History of the Medical College of South-Carolina.

We are indebted to our valuable correspondent, Dr. Baxter, of New York, for the following observations:

New York—Variations of the Thermometer for the first quarter of 1825.

	morn.	noon.	night.		morn.	noon.	night.		morn.	noon.	night.	
max.	43°	55°	42°	Jan'y.	40°	61°	44°	Feb'y.	53°	70°	55°	March.
min.	21	26	23		12	31	16		32	40	30	
diff.	22	29	19		28	30	28		21	30	25	
med.	32	40½	32½		26	46	30		42½	55	42½	

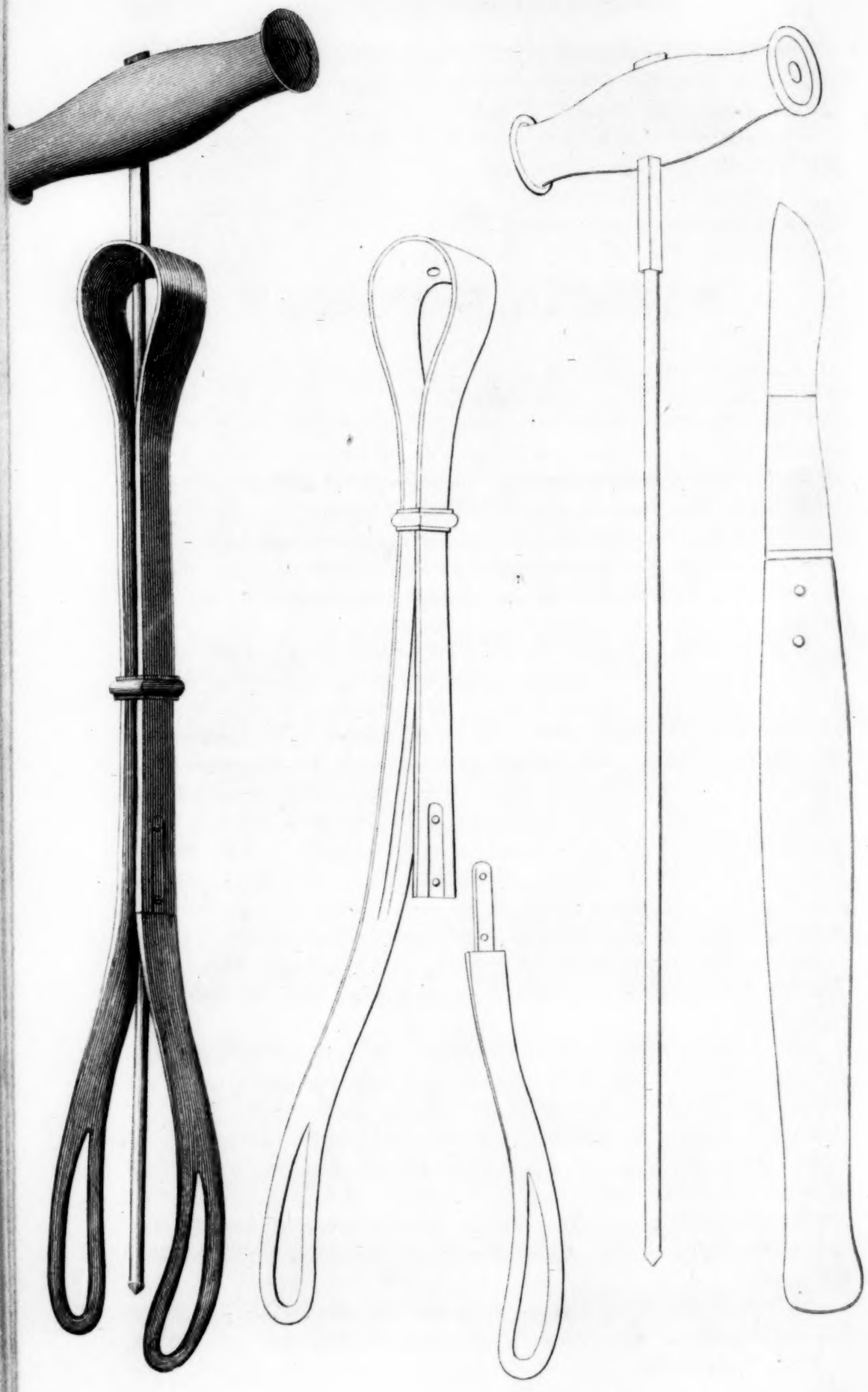
Observations from 6 to 7 in the morning—1 to 2 in the day—and from 11 to 12 at night, on Fahrenheit.

On the Barometer.

	morn.	mid-day.		morn.	mid-day.		morn.	mid-day.	
max.	30.4 inch.	30.3	Jan'y.	30.4	30.4	Feb'y.	30.2	30.2	March.
min.	29.2	29.4		29.5	29.4		29.3	29.4	
diff.	1.2	.9		9	1		.9	.8	
med.	29.8	29.8		29.9½	29.9		29.7½	29.8	

Highest and lowest points of the Barometer at New York, in 1824.

January,	30.4 in.	29.2	February,	30.5	29.1	March,	30.4	29.8
April,	30.2	29.3	May,	30.4	29.45	June,	30.1	29.4
July,	30.2	29.7	August,	30.15	29.6	Sept.,	30.4	29.6
October,	30.2	29.5	Nov.,	30.4	29.4	Dec.,	30.4	29.3



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